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Twenty-Fifth Anniversary

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The Physiotherapy Review

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Volume 26 **JANUARY-FEBRUARY 1946** **Number 1**

A History of the American Physiotherapy Association

Ida May Hazenhyer, M.A.

Prelude

Reconstruction Aides! Who were they? What were they? And why? When those blue-uniformed young women first made their appearance in army hospitals during World War I, they were a puzzle even to members of the medical corps. They were not nurses, they were not so-called social service workers, they were not daughters of the rich come to help the soldiers forget their troubles. Nor were they the popular WACS and WAVES of World War II. No nimbus glowed above their modest heads, for they were not extolled in radio stories and they never appeared as honor guests on quiz programs.

The question of who, what, and why was still puzzling some high authorities several years after the war when attempt was made, by this mysterious group, to gain for itself recognition. When they wrote to senators and representatives and veterans' organizations, they received such replies as: "What are Reconstruction Aides?—It was news to me that such a group of women existed.—Please explain what you mean by Reconstruction Aides.—Never heard of them before." One of those women related that they were sometimes called Belgian war widows and lady detectives.

One ex-aide tells the story of her unit arriving at a hospital where no aides were expected and there were no quarters for them. Five of them slept in a laundry and five in a students' class room. There was no physical therapy department. It was no uncommon thing, in those days, to hear medical officers ask: "Who are these women? What are they for?" This was especially true over in France, and some commanding officers, not knowing what else to do with them, tried to assign them to jobs far removed from the work for which they had enlisted.

The president of the United States did know there was a Division of Physical Reconstruction, for in an issue of *Carry On*, a magazine published through the Division, he expressed his approval of the work: "There is no subject which deserves more immediate or earnest consideration than the subject of the physical reconstruction of disabled soldiers." But whether or not he had heard about or had ever seen the aides in blue uniforms, we do not know.

In another issue of the same little magazine appeared a tribute to P.T. Aides specifically, but the knowledge of those aides was less specific, apparently: "There is a splendid group of young women—designated as Reconstruction Aides in Physiotherapy, scattered throughout the forty-seven hospitals. These women, thoroughly trained in physical education, have supplemented that knowledge in special courses in *military massage* (italics our own) and muscle re-education."

But to the boys in the hospitals, these women were well known. The blue uniforms with white collars and cuffs and blue and white caps (sometimes worn in pockets) were familiar notes in the corridors of army hospitals and about the posts, and in the physical therapy departments the boys sometimes felt the soothing strokes of

Physical Therapist, Jahn School for Crippled Children, Chicago, Illinois.

capable hands, and sometimes the rougher treatment of strong arms. But whether a soldier was relieved of pain and discomfort by "military massage," or forced to stifle groans, he knew that the treatment he was receiving was helping him to recover use of the wounded arm or leg, was helping him to regain as much as possible of his former physical self. To the boys these women were known as P.T.s, but according to the custom of soldiers, there were other names as well: Poor Thing, Pretty Tough, Rubbing Angels, Real Angels, Real Americans.

Figure 1. Indoor uniform of the aides.

Well! Since many of the higher authorities in Washington never heard of Reconstruction Aides, and even members of the medical corps did not know what to do with them, how came these aides into being? The answer is that at least two men in the Surgeon General's office possessed vision of the possibilities in physical therapy and were inspired to rehabilitate wounded soldiers as quickly and as surely as possible. In physical therapy—or physiotherapy as it was then called—these men saw an adjunct to medicine and surgery.

Col. Joel E. Goldthwait, chief surgeon in the Orthopedic Medical Corps of the A.E.F., and Col. E. G. Brackett, in the same capacity in home service, were principal advocators of this new branch of service. It was through their efforts and by their enthusiasm that the department of Reconstruction Aides was originated in the Surgeon General's office in the latter part of 1917. The department was first called the Women's Auxiliary Medical Aides and was under the Division of Orthopedic Surgery. Later, the title was changed to Reconstruction Aides, and the service was transferred, in April 1918, to the Division of Physical Reconstruction.

Dr. Frank B. Granger, who was already using physical therapy in Boston City Hospital at the time war came, was given charge of all physical therapy in the army, both at home and abroad. He developed the work in army hospitals to such an extent that by the time the emergency was over physical therapy had gained a respectable place, and hundreds of soldiers were made more fit by the treatment. It was because of Doctor Granger's ideals that women of high quality were accepted in the service, and through his efforts that physical therapy was even then becoming a profession which demanded adequate training. The facilities at that time were limited, to be sure, but he insisted upon the best available. He was father and friend and promoter of a new profession.

Yet another important figure was that of Marguerite Sanderson, from Doctor Goldthwait's office in Boston. She was chief aide immediately under Doctor Granger, and like him, was diligent in the desire to obtain only women of good character and professional standing. She began her work in the Surgeon General's office, but later was sent to France to take charge of the work abroad.

At the outbreak of war there were no schools of physical therapy, or even short courses, but very soon several courses were established. The students accepted were chiefly teachers of physical education who already had some background in anatomy and allied subjects, or they were graduates of physical education schools. The first physical therapy course organized was at Walter Reed Hospital, but because this course could not supply all the needs, a request was sent to a number of colleges and schools of physical education to assist in training aides. Fourteen institutions established courses to meet the requirements outlined by the Surgeon General's office, the largest of which was Reed College in Eugene, Oregon. Mary McMillan, one of the chief promoters of the American Physiotherapy Association, was in charge of this course. Many of the army aides had the fine experience of training under her.

During the war emergency there were some two thousand aides in service, almost three hundred of whom were overseas. The work was carried on in all army hospitals and continued into Veterans' Hospitals. These women, however, were civilian employees, subject, nevertheless, to army regulations. They not only had to meet the requirements of the Surgeon General's office, but they were required to take oath and serve until they were released. They had to be between the ages of twenty-three and forty, and had to be citizens of the United States or subjects of one of the countries at war with Germany. In their department wards they "stood inspection" even as did the soldiers in camp, and like the nurses, they were not supposed to associate, socially, with enlisted men. (However, at this late date, we may whisper that they often broke this latter

rule. Indeed, at this late date, we may even whisper that they sometimes gave parties to which came men ranging from buck private to major!)

This state of "being with but not of the army" became a grievance to the aides from the time they first realized their status, and the battles for recognition sometimes reached the ebullient stage. Several years after the war, in reply to their request for military status, they received from the Surgeon General's office some of the following arguments: The aides were too small a group to expect special consideration. There were "hundreds of thousands" of other employees who were not receiving benefits, and the aides were no more entitled to military status than these others. "This office is unable to perceive, however, why the particular classes of employees mentioned should be singled out for preferential treatment from all the employees connected with the military establishment during the war." This ratiocination, however, did not satisfy the aides. They still maintained that since they were "military" in everything but benefits, they also should have the benefits. But they were never so rewarded.

Yet, even without military status, the aides of World War I will live on through posterity. In the Red Cross building in Washington, D. C., on a pillar supporting the ceiling of the great hall, is an inscription which states that there was such a group as Reconstruction Aides, and in the Smithsonian Institute, in a case all by themselves, are the indoor and outdoor uniforms of the aides. These uniforms, complete to shoes and hat, were donated by the American Physiotherapy Association. The indoor costume, made of blue cambric, may deteriorate with time, but the outdoor suit and coat and cape were made of stuff which should endure through the ages. Unless an atomic bomb destroys the Institute, that uniform should still be in its case when the glory of the aides of the war of 1917-18 will be recounted in ancient history.

A well-known surgeon said of the aides who wore those uniforms: "If this emotional upheaval of the World War did no more than to give us this group of trained workers to act as teammates with the physicians and surgeons in their efforts to restore the disabled, then that period of idealism was well worth while. That period from 1917 to early 1920 in the history of the medical profession and its allied groups can almost be compared to a great religious revival."

A note, dated December 1945, from Mrs. Marguerite Sanderson Smith reads in part as follows:

"I am sending copies of two letters: one from Newton Baker and one from General Pershing to Colonel Goldthwait, which I am glad to have the opportunity to send you. I accepted these letters as a tribute to the Reconstruction Aides and I am so glad to pass them on to you where they will be published for all the Aides to see. They so richly deserve this appreciation that I regret a history was not written years ago incorporating these two letters."

AMERICAN EXPEDITIONARY FORCES
OFFICE OF THE COMMANDER IN CHIEF

February 20, 1919

My dear Colonel Goldthwait:

I wish to thank you for the important services you have performed for the American Expeditionary Forces as Chief Consultant in Orthopedics.

The marvelous advances made in medical science during the war have been among our most important achievements and will remain a lasting benefit to mankind.

The power of an army depends in a great measure upon the number of able-bodied men returned to it from hospitals, which number is greatly enhanced by the proper treatment and correction or prevention of deformities resulting from injuries.

The excellent and intelligent manner in which injuries and deformities among our sick and wounded were treated by our special medical units is due to the careful and diligent manner in which you, as Chief, and your able assistants in the orthopedics service performed your important duties, reclaiming many men for the useful and industrial pursuits of life who would otherwise probably have been hopeless derelicts upon society. Your services have been highly commendable.

Very sincerely yours,
JOHN J. PERSHING

(The above was sent to Marguerite Sanderson by Col. Joel E. Goldthwait with this comment:

"In grateful acknowledgment of the very important part which you as Supervisor of Reconstruction Aides for the A.E.F. performed in making this work possible.")

WAR DEPARTMENT
WASHINGTON

February 28, 1921

My dear Miss Sanderson:

In reviewing the work of the Medical Department of the Army during the war and in the months that have followed the armistice, it has seemed to me that perhaps not enough recognition has been given to the group of men and women who accomplished such striking results in the way of reconstruction of the unfit and damaged men of our Army.

Of this group I learn that you rendered conspicuously important service. Your assistance to the orthopedic surgeons in helping them lay plans for the training of women to undertake the reconstruction of injured men in the hospitals; your management of their duties and your efforts to fit them into the military establishment—all were to such good purpose that much pain was relieved, and the number of hospital days for many men was lessened, and the amount of their permanent disability was greatly reduced. This was a distinct contribution to the Army and to the country. Your patience under annoyances and inconveniences and the perseverance you showed in meeting difficulties was most com-

mendable. The principles of professional and personal conduct for which you stood have become the accepted principles in the reconstruction branch of the Medical Department, and your influence upon it will long be felt.

It is to women like you, who laid aside personal plans and comfort to help in the time of need, that the country owes a debt of gratitude. Your unselfseeking devotion to duty will always be an inspiration to all with whom you come in contact.

I take pleasure in congratulating you on the service you were able to render to your country and to commend you for most meritorious accomplishments.

Cordially yours,

NEWTON D. BAKER,
Secretary of War.

Part I: Pioneering Days, 1921-1925

The beginning of an event is always of enthralling interest to those who succeed that beginning by an appreciable lapse of time, whether the inception be that of the world, or of man, or of recorded history—or of the American Physiotherapy Association. Although the origin of the latter post-dates the others by quite an interval of time, and though it is infinitesimal in the larger scheme of events, it is, nevertheless, an important occurrance in the scheme of these our own lives. So, we turn our eyes upon the screen of cosmic memory where we may witness a goodly number of reels which demonstrate the evolution of the American Physiotherapy Association. We hope the readers of this history will find on the screen not only professional significance but also the bright technicolor of romance.

When those aides of World War I began to finish the job for which they had "enlisted," when the days of their service and their friendships were coming to a close, several isolated groups, here and there, formed local clubs primarily in the spirit of auld lang syne. (These groups later became chapters of the Association.) But one group in Walter Reed Hospital, under the inspiration of Mary McMillan, conceived the idea of a national association which would not only satisfy the feeling of nostalgia but, far more important, would bind these aides together in an ambition to continue and to build up the profession of physical therapy.

As early as 1919 there was an incitement to create an organization, and in the latter part of 1920 the movement was gathering force. September 1920, Dr. Harold D. Corbusier wrote a letter to Mary McMillan suggesting the formation of an organization: "To advertise to the physicians and surgeons of the country the importance of the various methods of treatment by physical means. To elevate and standardize the work and place it on a more substantial basis . . . To urge upon the various hospitals the importance of establishing departments of physiotherapy. To urge upon the Medical Department of the Army the necessity of creating a reserve force of trained workers and also to endeavor to obtain for the present and former aides recognition for the work which they have so conscientiously performed." In this letter, Doctor Corbusier stated that he had written to Doctor Granger and Miss Sanderson and others asking their cooperation, and he suggested that Miss McMillan "act as a member of a committee to put this matter through."

According to a report in the first issue of the P. T. REVIEW, letters were sent first to aides who had left the service, and later to those still in the army. In December 1920, about eight hundred circular letters were sent out with blanks for the nomination of officers. From these blanks a ballot was compiled and sent to about two hundred aides who apparently had already paid some form of dues even though the organization was not yet formally established.

Due to the activities in three different places in the East, the actual birthplace of the Association is a somewhat controversial question. As is true of many a native-born American, there is no birth certificate. Some correspondence claims Boston, some New York, some Walter Reed Hospital. However, the most convincing records point to Keen's Chop House in New York City where a meeting was held on January 15, 1921. According to the records, about thirty aides were present, and meeting with them were: Lt. Col. Frank B. Granger, Major McFee of Boston, Lt. Col. Corbusier of Plainfield, N. J., Major Ney of New York, Major Samson of Fox Hills, and Commander Bainbridge from the Navy Hospital.

The records are brief and unilluminated, without benefit of atmosphere. Undoubtedly, those pioneers, like the pioneers of our country, were concerned only with the business of making their way in the wilderness. They were too busy with the problems of establishment to pay much attention to the setting of the birthplace. That they visualized much of the future we know, yet surely they did not fully appreciate the thing they were doing, nor could they have foreseen the outgrowth of the nucleus they founded on that day twenty-five years ago.

However, we do know that this, to us, famous Chop House, dating back to the nineties, still operates. Its two main attractions are and have been "magnificent English mutton chops," and the churchwardens—long-stemmed clay pipes

hanging from the ceiling. A customer may buy a pipe if accompanied by a Pipe Club member, and when the customer leaves, the pipe is numbered and hung on the rack and is forever the property of that person, to be smoked whenever he returns to the House. We do not know—but we surely would like to—if any member of that party meeting on January 15, 1921, smoked one of those pipes. (There were gentlemen in the party!)

Only a few of those aides are now on the Association's membership list; the others have perhaps married and left the ranks, and a few have even "disappeared." Our great friend, Doctor Granger, passed away in October 1928. But as we who have succeeded them think back upon that scene and others almost as important, we are inclined to flourish the trumpets now over the birth which took place minus fanfare. For to those pioneers, and especially to the officers, we pay our respect and gratitude.

The infant organization did no marking time; it stepped right out into the march. "One of the results of the World War was the universal recognition of the value of physiotherapy," said Doctor Granger, in whose office the first work of the organization was done. "The success attained in the army was in a great measure due to the loyalty, the contagious enthusiasm, the professional ability and the whole-souled devotion to duty of you, the Reconstruction Aides in physiotherapy. It is now necessary for you to maintain inviolate the high standard which you have initiated, but also by your influence and example to advance it to a still higher plane of usefulness and exactness."

The new organization, then known as the American Women's Physical Therapeutic Association, immediately set forth its objectives in the constitution: "The purpose of this Association shall be to establish and maintain a professional and scientific standard for those engaged in the profession of physical therapeutics; to increase efficiency among its members by encouraging them in advanced study; to disseminate information by the distribution of medical literature and articles of professional interest; to make available efficiently trained women to the medical profession; and to sustain social fellowship and intercourse upon grounds of mutual interest."

Membership

Membership in the Association was defined thus: "Charter members shall be Reconstruction Aides in Physiotherapy who have served satisfactorily with the U. S. Army and Navy or with those of the Allies, whose training and experience must total one year and who apply for membership in the Association within one year of the ratification of the Constitution.

"Active members shall be graduates of recognized schools of physiotherapy or physical education, who have had training and experience in massage and therapeutic exercise, with some knowledge of either electrotherapy or hydrotherapy, and whose character and personality are definitely suited to the work. The Executive Committee shall have power to formulate such rules as will maintain a standard for eligibility and to institute such entrance examinations as they deem advisable."

There was nothing in this first constitution or the one revised a few months later about members working only under the direction of physicians. Undoubtedly the omission of this important item was due to the fact that the aides had been in army hospitals where, as a matter of routine, their orders had come from the officer in charge of the department. It was only later, as the members of the Association began to go out into civilian practice, that they realized the need of this essential rule. The third revision of the constitution is not available, but in an editorial in the REVIEW we find this statement: "We must in this" (standards) "stick to our own field, which is the carrying out of prescriptions given by doctors and not diagnosing, prescribing or in any way experimenting in the treatment of disease."

In the first few issues of the REVIEW were application blanks which called for: name, address, training, served at, present occupation, dues $2.00. Nothing more was necessary because all aides were eligible. But in the December 1921 issue, there was already a slight change in the constitution: "Persons who have had at least one year's experience, with some fundamental training, may be accepted as active members after approval and acceptance by the membership and executive committees." No more blanks appeared until the September 1923 issue, and these new applications were more specific, and at the bottom was the note: "Please do not pay dues until notified of acceptance." This type of blank continued to be printed until March 1925 when again there appeared one with only name, address and present occupation. The Association was by this time considering applicants on a more extensive basis.

During this time a question arose concerning the admission of nurses who were, or had been,

doing some form of physical therapy in the army or elsewhere. The constitution stated that applicants must be graduates of recognized physical education schools, or physical therapy courses. This eliminated nurses, and an objection was raised. One nurse who had been doing work which she considered sufficiently important to admit her to the Association, wrote a letter of protest to Doctor Granger. To this protest, Doctor Granger replied: " . . . That a graduate of a reputable nursing school, who has had special experience in physiotherapy should be eligible for membership." Perhaps the aforesaid missing constitution provided for the admission of nurses with adequate physical therapy training, for we know they became members as early as 1924, if not before. At any rate, the 1927 constitution definitely included members with a nursing background.

The membership at the beginning of 1921 was 245, including honorary members, and two in England. Thirty-two states were represented. But by 1925 the figure was slightly lower. This small decrease rather than increase probably was due to the fact that many who joined while still in service had later been discharged and returned to former occupations since physical therapy positions were few. Likewise, the Association's increased vigilance in accepting members eliminated those without army experience and without adequate credentials.

Chapters

As was stated earlier, several groups of aides organized in different localities shortly after the end of war, chiefly to continue friendships made in the army. Individual members of those groups became members of the National Association when that was organized, but they did not immediately affiliate as chapters. True, there are nine chapters listed in the second issue of the REVIEW, but these were not chapters in the sense of groups closely associated with and an actual part of the National Association.

However, the second constitution issued in December 1921, made this provision: "Local chapters may be affiliated with the National Association provided the requirements for admission as stated in their constitutions conform with the constitution of the National Association." After a chapter's constitution was accepted, members of that chapter could join the National Association through the local branch upon payment of dues including the three dollars due the national treasury. Whether chapter members also must be members of the Association was left to the chapters to decide. Wherever a state license was required of physical therapists, members were expected to conform to the law.

By the end of 1925 there were five regular chapters: Chicago, Cleveland, Massachusetts, New York, Pennsylvania.

Name

Early in the history of the Association there arose the question of name. It soon became apparent to the members that the original name of American Women's Therapeutic Association was not a favorable one since by the very title men could not become members, and the Association did not wish to exclude males who would otherwise be eligible. Accordingly, when blanks were sent out for the second election of officers in 1922, the members also were given the opportunity of selecting from a number of suggestions a new name for the Association. The one which received the greatest number of votes was the American Physiotherapy Association.

But this did not close the doors upon the subject. Two years later the Association received several requests to change its name. Some of the reasons for the request were as follows:

1. "Physicians who were active in physical therapeutics before the war feel that the term physiotherapist should be used to designate a graduate in medicine in the same way that roentgenologist or laryngologist is used.

2. "The present name is suggestive of an association of physicians, or of an association competing with them, and so misrepresents our status.

3. "In responses to letters to the Board of Health in the various states we found that where the reply was other than 'no regulation', a physiotherapist is classified with chiropractors, midwives, chiropodists, and others under the 'Drugless Healing' nomination.

4. "The addition of the word 'technician' indicates our harmonious cooperation with the medical profession and carries with it distinction, specific definition and dignity."

Considerable correspondence was exchanged between the Association and the advisory committee and other interested organizations, and the REVIEW published arguments pro and con. Members were asked to consult, informally, with physicians or organizations in their localities. Dictionaries were engaged to define "technician" and terms ending in "ist". "The New England Dictionary defines the suffix 'ist' as designating a person who practices some art or method or who prosecutes, studies or devotes himself to some science, art or branch of knowledge; then

goes on to name anyone from archaeologist to moralist, scientist, ventriloquist, etc."

And so began the controversy which was to be a topic of discussion for many years, a controversy which sometimes pushed the mercury of emotions and opinions pretty high in the thermometer of physical therapy.

Standards

Since the Association, from the beginning, was determined to obtain and maintain high professional standards, it followed that interest in education must be one of its chief objectives. Shortly after the organization of the Association, the president said: "Another duty of the National Association is to keep in touch with schools and colleges that are giving courses or postgraduate courses in physiotherapy so as to encourage the interest of our members in further study." Beginning with this second issue of the REVIEW, announcements and advertisements of courses were published so that members and others would have some guide in choosing a school. The president proposed keeping a file of all accredited schools, and asked members to furnish information concerning schools in their localities.

Figure 2. From the P.T. REVIEW, *Vol. I, No. 3.*

As yet there was no formal or systematic means of checking schools, but the Association was mindful of this necessity and was doing all it could about the situation. It believed that education and proper training were the signposts which pointed toward higher standards. When it was only a little over a year old, it was asking the question: "Should more definite general education and special training be defined in the constitution?"

All of the physicians interested in physical therapy and in the new Association were encouraging high standards and adequate training. Dr. John S. Coulter, who was to become one of physical therapy's best friends, deplored the shortage of trained workers and warned against employing persons trained by manufacturing concerns in the usage of different machines and instruments. One concern in the Middle West advertised a three weeks' course, "complete intensive training course in physiotherapy to nurses and office girls." The Association immediately protested to the firm, and sent a letter to the American Medical Association concerning the outrage.

To demonstrate how such so-called physical therapy workers were regarded by the medical profession, we quote from the *Journal of the American Medical Association* a poem:

If your hair is falling out,
Use the lamp!
If you're suffering from the gout,
Use the lamp!
For those pains that hurt you so,
For that ache in your great toe,
Use the lamp!

During the Association's first year, an incident which reached the boiling point occurred at Letterman Hospital where a nurse without adequate training was to replace the head aide leaving the service. The aides at the hospital protested to the commanding officer, and the Association protested to the Surgeon General. Aides who had been overseas recalled that in one station an order had been issued requiring the physical therapy department to teach physical therapy to nurses "in two weeks, if we remember rightly." The argument against this sort of practice was threefold: "First, it injures the patient. Second, it harms physical therapy. Third, it harms the nursing profession because it takes the nurses whom it affects away from their chosen work and places

them in an uncomfortable and undignified position. They are required to stroll in some fine morning and ask for two weeks' worth of boiled down P.T., much as if it were a box of concentrated food tablets."

The battle was on, and the Association kept the wires and postal lines tingling with indignation over the possibility of lowered standards and the threat to make physical therapy a branch of nursing. Whether or not all of this affected the ultimate decision regarding the untrained nurse, the indignant aides and the Association could not be sure. However, we now suspect that those efforts did have some influence in saving the department from an unjust situation, for the nurse was not placed in that office. It could be that that particular department might still have done well in treating patients, in spite of an ignorant head aide, because those doing the work were efficient, but certainly an adverse decision in the case would have been a set-back for physical therapy in the army, at least.

As the officers and members of the Association eagerly but gingerly felt their way along the still uncertain road, they considered the possibility of some sort of affiliation with the American Medical Association. Indeed, at the second convention a resolution was passed to present a petition to the president of the A.M.A. At the third convention the subject was again discussed, and again a committee was appointed to seek an affiliation. As we all know, now, nothing came of this.

Still another frustrated theory was that of establishing physical therapy through legislation. An editorial in the December 1924 issue of the REVIEW made this naive statement: "When the need for recognized schools of physiotherapy has been met and these schools firmly established, a special physiotherapy license will no doubt be easily obtained." To be sure, this vision of a solution was not naive to those who conceived it; it represented a sincere struggle to place physical therapy on a sound base, and those members were doubtless unfamiliar with the hazards and difficulties of legislation, perhaps unaware that they were proposing "going into politics." Said a member in the REVIEW: "I see our legislatures giving us a professional rating." Later in this history we shall relate a funny yet scurrilous story on this subject.

The Association's journal was, of course, an important medium of education. In it were published articles by recognized medical men, some of whom were nationally known. There were, likewise, articles by members on such subjects as technic. There were book reviews, and there were announcements of various activities which would help members improve themselves.

And yet another means of assisting members was in the establishment of a Vocational Bureau in 1925, an outgrowth of the informal S.O.S. in the early issues of the REVIEW. Through this service, physicians and institutions could obtain qualified physical therapists, and members could be helped in securing positions they desired. The Association was listed in the directory of The Modern Hospital. Service was rendered as far away as South Africa.

Yes, the new Association was striving for those ideals which Dr. Ray Lyman Wilbur stated in his address to the third annual meeting: "Now it seems to me that the great opportunity of this Association lies in studying closely its field, keeping itself well in harness so that it does not run after extravagant claims but maintains itself on a basis that can always be defended. The future of physiotherapy is going to depend upon the confidence shown it by the medical profession . . . You come into that field in a way that makes you indispensable if you will train yourselves thoroughly, and if you will keep physiotherapy on a scientific and on a professional basis."

The P. T. Review

March 1921 there appeared on the publication horizon a new journal, a sixteen page magazine seven-and-a-half by five-and-a-half, dressed in a blue jacket, like the R.A. uniforms. At the top of the cover stood the name in black letters, P. T. REVIEW, and immediately below: Volume 1, March 1921, Number 1. At the bottom of the cover: Published by American Women's Physical Therapeutic Association.

That was the beginning. It was a modest start, indeed, launched by an inexperienced, trembling, perhaps even doubtful, staff of volunteer workers. On the first page was an editorial: "The P. T. REVIEW makes its first appearance under many difficulties. The work has been done entirely by volunteers. We trust our readers will be lenient about any sins of omission and commission. As the editorial work is new to us we hope to improve as time goes on. This issue therefore is no criterion, as our aim is to make each copy an improvement over its predecessors."

Right here we wish to contradict part of the above statement. That first issue *was* a criterion, for it was a brave beginning which initiated the best journal of its kind now published. From that embryo developed a truly professional journal which now has a circulation covering all of the United States and reaching twenty-three

foreign countries, a journal on whose pages appear scientific articles covering every form of physical therapy and many allied subjects, articles written by members, by scientists, by high ranking members of the medical profession.

But we are getting ahead of the story. That first issue contained greetings from Marguerite Sanderson, and a half-page from Dr. Joel E. Goldthwait on *The Value of Physiotherapy as Proved by the War,* which ended thus: "Such a publication as this" (the REVIEW) "will do much to preserve the standards and advance the science of the profession. It has the best wishes of all interested in Reconstruction Surgery." In this first issue were the constitution and by-laws of the Association, the announcements of the officers and the first meeting in Keen's Chop House, news from local organizations, and a directory of members. There were also a simple application-for-membership blank, one book review consisting of six lines, and eight items under an S.O.S. This S.O.S. was a harbinger of the later Vocational Bureau, and one item is especially attractive: "A bright, cheerful aide wanted in a hospital for mostly nervous patients. Fifty miles from Baltimore. One able to teach folk dancing, calisthenics, sports and take charge of the hydrotherapy." (Any present P.T. qualify for all of that?)

Mary McMillan writes of this issue: "Well do I remember carrying the first manuscript of the REVIEW to the Brookline Printing Press, getting a price, and then leaving it to be published." Another member writes: "I have a vague recollection of reading proof over chicken and waffles in some Boston tea room." No wonder the recollections are vague after twenty-five years, and little did those pioneers know, at the time, that their efforts over chicken and waffles would materialize into THE PHYSIOTHERAPY REVIEW of 1946. (The Association itself came into being over a supper table. There must have been plenty of vitamins in those eats of way-back-when.)

As bravely did the P. T. REVIEW start, so it promptly came out with its second number three months later, and it continued as a quarterly until 1928, after which time it became a bimonthly. This second issue of the REVIEW, now dressed in the familiar gray, was already taking on an appearance and quality of progress. On the first page was an imposing array of eleven staff members, including foreign editors. The paper was of good quality, there were three short articles, one by a member, an encouraging editorial by the president, and eight advertisements, including two of physical therapy courses.

In this issue, as in many to follow, there was an echo of army days because all of the Association's members of the early twenties were aides. We find many problems of the ex-aides stated, chief of which was that of recognition and status, a grievance which was to ring down through the years until the coming of the Second World War. Some of the editorials on the subject were vituperative:

"Overseas, if there was emergency work to be done—and there was—if there were rules of dress and conduct to be observed—if there were hours to be kept—in short, if there were lines to be toed—we were, to all intents and purposes, as drastically military in status as hobnails and hardtack. But if the question was one of life insurance, or of a new issue of clothes, or of the dozen and one minor benefits that accrued to established military standing, nothing could have been more civilly civilian than we. . . .

"A torpedo fired by a submarine on the journey overseas would (we are to suppose) have swerved aside from any civilian body in its path and would have plumped itself into pectorals of legitimate military standing. In the same way, a meningitis or flu bug would not have dreamed of attacking a nonmilitary membrane; tissues that had not been duly sworn in would never have tempted its ingenuity. So why should nonmilitary personnel (nonmilitary, that is, so far as military benefits are concerned) be burdened with life insurance? 'With, but not of, the A.E.F.'—what colossal, what delectable senses of fun the originators of the phrase must have had!"

Reminiscent of the aides' grudge against the powers-that-be, is this choice gibe captioned *Orders Is Orders:* "It was a long march north of Chateau Thierry. At the end of a dusty day the captain ordered that every man in his command should change his undershirt. The first sergeant whispered to him that not a man possessed more undergarments than those which were at the moment adorning his person. But the captain snapped back: 'Military orders must be obeyed. Let the men change with each other.' "

Another feud which germinated during army days and persisted into the ex-aides' era, was that of P.T.s versus O.T.s. In a later issue of the REVIEW, we read this tirade on the question of morale: "We hope that those in authority in carrying on this morale work" (in Walter Reed Hospital) "are capable of understanding that although the P.T. department is not so obviously a 'morale agent' as the O.T. department, it is no less genuinely so. Anyone who knows A.B.C. in physiotherapy realizes that the mental contacts between patient and P.T. are as potent of good results as those between patient and O.T. But

then, there's just the chance that this will fall into the hands of one of those persons who—while they smile approvingly on hefty P.T. operations, and murmur that it must be 'Fascinating work, but don't you find it a strain?'—pass on with apparent relief to the beads and the bronzes, the block prints and the cord work that adorn the picturesque O.T. shop. 'Ah,' you can hear them sigh, 'this is charming! What an opportunity to win the men's interest!' "

One member of the Association wrote to the editor that many criticisms had been made because the REVIEW continued to use news items of aides, and humorous columns; more scientific articles were wanted. The editor's reply was that these items of army life were used for the sake of auld lang syne. After all, it was the aides who started the going concern of the A.P.A.

But as we look through these early issues of the REVIEW, we find much more than grievances and comedy columns and poems about the volt and the ultraviolet lamp and cartoons. The grievances were justifiable, and the lighter notes demonstrated the army-aide-and-American-girl's sense of humor and ability to laugh in spite of all. There was, in those days as in the entire period to the present time, the worry of getting suitable material, of meeting publication dates, of gathering in the finances to pay the bills. In the third issue appeared this notice: "THE P. T. REVIEW wants good material. Send anything that might be of use—news items, jokes, short articles, or cartoons. . . . The REVIEW cannot pay for any accepted material. Unusable manuscript that is submitted with a stamped envelope will be returned." (Already this reads like the rejection slips of established publishing houses.)

But the above notice did not bring prompt results. The following issue, in which there were no articles, not even a measly joke, came out with a scathing editorial: "Surely it does not take the editorial mind to realize that no one can concoct an interesting, substantial, quick-fire professional periodical out of thin air, any more than he can print it on the same accommodating material. None of us on the editorial staff of the REVIEW is paid in anything but appreciation—and, by our troth! that payment can't be said to be always audibly made—and none of us asks for money . . . . Are they" (the readers) "satisfied and interested, or bored and disappointed, or merely indifferent about the REVIEW? . . . We know nothing. We only suspect that if indeed you live and breathe and have your being, if you go broke and have grippe—and loathe tapioca pudding and have occasional cold feet—like the rest of us—you also have something to say from time to time that will be of use to the publication that represents you."

To be sure, material did come in for later issues, or the REVIEW would not have lived to celebrate the silver anniversary, but the old bugbear of money likewise stalked through the nightmares of the staff. The treasurer stated that on January first 1922 the only asset in the treasury would be Good Will. If the March issue was to be published, members would have to pay their dues. Of course, the March issue did come out, and with it came a now-familiar warning that no copies of the REVIEW would be sent to members who had not paid their dues. There also were news items, jokes, poems, announcements, and two short articles, one by a member.

By the end of 1923 the dues had been raised to three dollars, and nonmember subscriptions to two dollars. There were as many as nine advertisements in an issue. The finances of the Association were improving. Indeed, even in this early period there was talk about a paid secretary to take over some of the work the members were doing in spare time. However, it was to be several years before that could be done.

From the beginning, the REVIEW was a means of communication with Association members; in fact, in those first days, it was almost the only means. When there was to be an election of officers, a blank would appear in the REVIEW for the members to fill out, indicating their nominations, and at the annual meetings these nominations would be counted and the officers elected therefrom. Applicants for membership would likewise find blanks which could be sent to the national office. Names of new members were published, and once a year there appeared a complete list

Figure 3. From the P.T. REVIEW, *Vol. I, No. 2.*

of members. This latter custom was followed until 1936, after which time a membership directory in booklet form was published periodically.

The first bibliography on physical therapy literature was listed in June 1924, taken from a compilation by the Hospital Library and Service Bureau. In September 1924 was published the first real report of convention business and proceedings. On the cover of Volume II, Number 2, the present name of the Association appeared, and on the first page of Volume IV, Number 4, was the first formal statement of application for entry as second class mail. Illustrations with an article made their debut in Volume II, Number 3.

Figure 4. The first illustrated article, "Common Abnormalties of the Feet." From the P.T. REVIEW, *Vol. III, No. 3.*

And while we are on the subject of "firsts"—that controversial term *technician* broke into print in an editorial in the September 1925 issue. The controversy was initiated, and carried on for years, like a good case of osteomyelitis which heals, breaks down, heals, breaks—until the patient wonders if the disease ever will be conquered.

By the end of 1925 the REVIEW had taken on the physical appearance of a professional journal, and the scientific articles demonstrated not only the REVIEW's desire to be educational, but likewise indicated a general increased interest in this comparatively new work. The first few articles, like the REVIEW in general, reflected the army experience in such titles as, *Suggestions for the Treatment of Nerve Injuries*, and the writers of many of the articles were medical men who had been connected with army hospitals. This, of course, was natural since physical therapy was an outgrowth of war days and few civilian physicians were familiar with it. But it was not long before the scientific material in the journal began to take on its civilian appeal, as for instance, in these titles: *Physiotherapy Helps Industry, Physiotherapy in Industrial Surgery, Neuroectomies (Stoffel Operation) in the Treatment of Spastic Paralysis.* There is even the forerunner of a very modern theory in, *The Emotions in the Production of Organic Disease*, and *The Body and Soul Clinic.*

In Volume V, Number 4, appeared an article on *Relation of Physiotherapy to Reeducation*, and the thoughts in this fourteen page paper are as good today as they were twenty years ago: "Sometimes reeducation involves the training of the individual to the formation of habits of using other parts of the body to accomplish something formerly done with a part of the body permanently or temporarily put out of function. . . . The greatest part of the problem is accomplished when the thorough cooperation (not enthusiasm) of the patient is secured. . . . He" (the operator) "must have that fine capacity of impersonal touch which is neither egotistic self-sufficiency or a maudlin sentimentality for he can neither drag the patient to competent self-administration or successfully serve as a pillow to lay on or a step-ladder for the untrained individual to climb to competency. . . . Reeducation is to the abnormal what education is to the normal."

Now, as we close the last REVIEW of 1925, we pay our gratitude and obeisance to the editors and publishers of this five-year-old-journal. Like all pioneers, those volunteer laborers gave of their time and efforts, and struggled through an uncultivated wilderness to establish a work of great value to their descendants.

Presidents of the American Physiotherapy Association

1921-1923	Mary McMillan
1923-1924	Inga Lohne
1924-1926	Dorothea M. Beck
1926-1928	Gertrude Beard
1928-1930	Hazel Furscott
1930-1932	Edith Monro
1932-1934	Margaret Campbell
1934-1936	Sarah Colby
1936-1938	Constance Greene
1938-1940	Helen Kaiser
1940-1944	Catherine Worthingham
1944-1946	Jessie Stevenson

Editors of "The Physiotherapy Review"

First issue	Isabel Noble
1921-1922	Elizabeth Huntington
1922-1924	Elizabeth Wells
1924-1927	Frances Philo Moreaux
1927-1933	Dorothea M. Beck
1933-1936	Ida May Hazenhyer
1936-1945	Mildred Elson
1945-	Louise Reinecke

Annual Meetings of the American Physiotherapy Association

Sept. 1922	Boston School of Physical Education, Boston
June 1923	San Francisco
June 1924	Drake Hotel, Chicago
May 1925	Atlantic City
June 1926	Park Lane Villa, Cleveland
May 1927	Hamilton Hotel, Washington, D. C.
June 1928	Curtis Hotel, Minneapolis
July 1929	Portland Masonic Temple, Portland
June 1930	Fort Selby Hotel, Detroit
June 1931	Pennsylvania Hotel, Philadelphia
June 1932	Hotel Pfister, Milwaukee
June 1933	Knickerbocker Hotel, Chicago
June 1934	Hotel Cleveland, Cleveland
June 1935	Hotel Dennis, Atlantic City
June 1936	Ambassador Hotel, Los Angeles
June 1937	Hotel Lowry, St. Paul
June 1938	Hotel Somerset, Boston
June 1939	Hotel Cosmopolitan, Denver
June 1940	Hotel Biltmore, New York City
July 1941	Stanford University, Calif.
June 1942	Lake Geneva, Wis.
1943	No meeting because of war
May 1944	Pennsylvania Hotel, New York City
1945	No meeting because of war

Editor's Note: This is the first of a series of articles by Miss Hazenhyer. The second article will appear in the March-April issue.

Reprints Available

Reprints and pamphlets as listed below may be obtained from the following organizations:

American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.:

"Physical Therapy — A Growing Profession." (Free)

"Physical Therapy: A Service and a Career." (Free)

"Physical Therapy in a Plastic Surgery Unit," by Honor C. Wilson. (Free)

"Proceedings of Poliomyelitis Round Table from 1944 Conference." (Price, 10c)

"Nursing and Physical Therapy Responsibilities in the Hospital Care of Patients With Infantile Paralysis." (Free)

Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York 19, N. Y.:

"Improvised Equipment for the Physically Handicapped (1944)," by Margaret S. Arey. (Free)

An Improved Hand Table

Herman L. Rudolph, Capt., M. C.

The interest shown in a recent exhibit of an improved hand-table in use by the Physical Therapy Section of Baxter General Hospital has suggested its presentation for publication. It is apparent that this useful piece of apparatus is not known to many and warrants the serious consideration of all concerned in curative exercise. The increasing number of casualties with injuries of the hand has multiplied the problems of management. It goes without saying that deformities of the hand frequently result in unusually severe limitation of usefulness. Witness the fact that a prosthesis for the upper extremity amputee has not yet been devised which can even remotely approximate the intricate maneuverability of the hands and fingers. It is a sad commentary on modern surgery that the majority of upper extremity amputees in civilian life are unable to adjust themselves to the use of a prosthesis.[1] It becomes obvious, therefore, that the care of the hand bears emphasis, increased attention and untiring effort.

In 1918 R. Tait MacKenzie[2,3,4] first described a long table mounted with several ingenious pieces of apparatus devised to afford active resistive and stretching exercises to the forearm, wrist and hand. These were designed for and adopted by the Military Hospitals Commission of Canada. This apparatus was offered commercially by G. Pilling and Sons Company of Philadelphia.[5]

Allen B. Kanavel[6] proposed mounting the appliances more compactly on a smaller table which is depicted in his monumental work, "Infections of the Hand." He stated his table was a modification of that suggested by Flint and others.

The Council on Physical Therapy of the American Medical Association, recently renamed Council on Physical Medicine, since the fall of 1942[7] has been distributing plans for a hand table and has designated this the "Kanavel Table," despite the fact that Kanavel disclaimed originality stating his table was modified from others, and despite MacKenzie's first description of these appliances in 1918.

The plan devised by the Council on Physical Medicine[8] was followed closely in the construction of a hand table at this installation. When put to use it was found to have far reaching possibilities in reclamation of hand function. In the course of time, it was noted that there were several deficiencies and that certain groups of muscles had little or no activation. For example, the spring trap door for the wrist permitted only of wrist flexion. Yet the more common radial paralysis necessitates activation of the wrist extensors. The pendulum utilized for pronation and supination of the wrist definitely was limited in excursion by the sides of the table, reducing the effective range of motion. The shaft of the wrist roller and wrist circumductor became worn smooth to the point where there was very little resistance to motion, thus making this appliance almost valueless except for stretching exercise. It further became apparent that abduction and adduction of the wrist might be activated more satisfactorily. It also was desirable to add the finger circumductor depicted in Kanavel's work.

With these deficiencies in mind, it was decided to modify the table for more effective utilization and better activation of muscle groups. A leather brake was added to the shaft mounting the wrist roller and circumductor. This affords a better means of securing graduated resistance thereby applying the overload principle to muscle exercise. One of the spokes of the wrist circumductor was slotted to afford proper placement of the handle. A change in position of this handle secures a change in degree of circumduction of the wrist.

The shaft of the pronating and supinating pendulum was hinged at its midportion. With a slow deliberate motion the wrist is able to move through a full range of pronation and supination by grasping the handle with the palm up or palm down respectively.

The finger pulleys were modified by placing leather finger loops at *both* ends of the cords. With the palm up, excellent flexion of the fingers can be secured by using the upper set of loops. With palm down and the hand elevated by a roll

Chief, Physical Therapy Section, Letterman General Hospital, San Francisco, Calif.

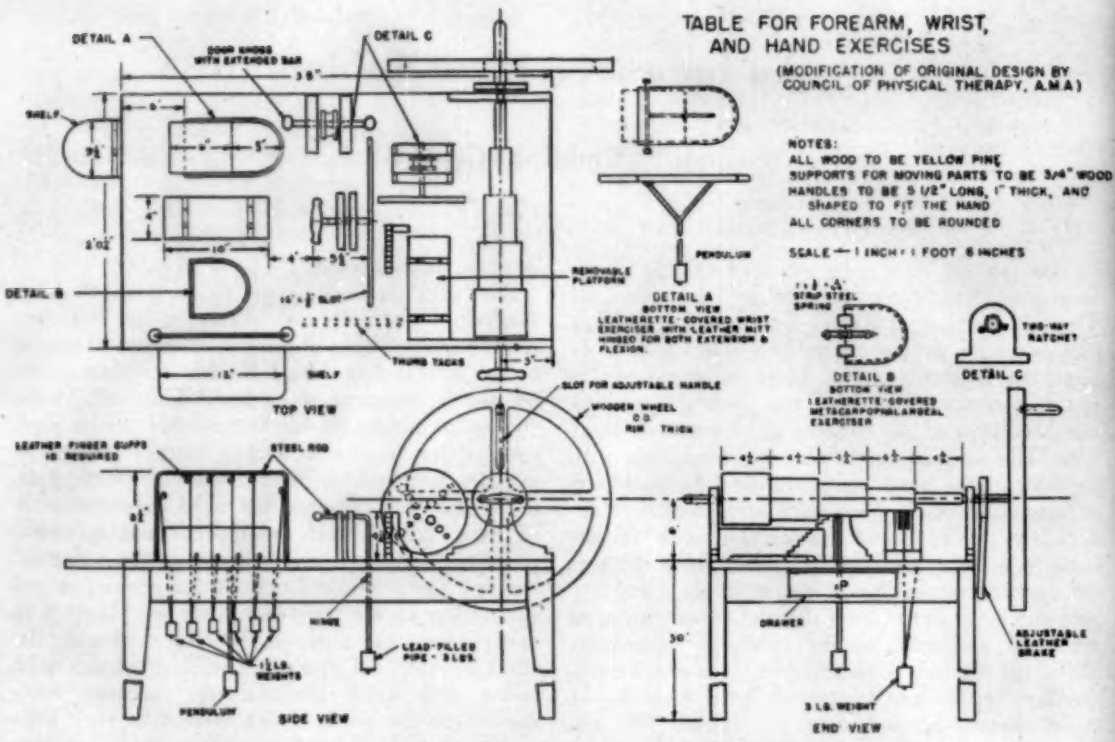

Figure 1. Schematic drawing of table.

of towel, extension of the finger can be secured by using the lower set of loops. Much more effective activation of the finger flexors can be secured by stabilizing the forearm. This was done by placing a removable forearm block and straps in position in front of the finger weights. This removable block is steadied by two dowels which are recessed in the table top. This block further serves as a rest for the finger circumductor. The finger loops can secure a good purchase on the fingers by sewing a heavy wire between two layers of leather. Squeezing the loop shapes it to the finger.

In order to secure extension of the wrist, the spring of the wrist trap door was replaced by a pendulum, which now affords full range of motion. A shelf with strap was attached to stabilize the forearm. A mitt was made for the reception of the hand, permitting activation of the wrist extensors.

A set of ordinary door knobs and shaft was mounted to afford effective abduction and adduction of the wrist. A spool on the shaft serves to wind a cord weighte don a pulley system. A ratchet on one side of the mount with a double set of flip-over catches can be manipulated to afford motion to either wrist in either direction of motion.

A finger circumductor was mounted, also with a ratchet and weighted pulley system. Circumduction of the fingers, especially the index, can be effectively secured in both clockwise and counterclockwise direction. The forearm is stabilized by a removable block and straps.

A row of thumb tacks was added to secure activation of the finger abductors and adductors.

The finger ladder and the metacarpophalangeal spring trap door were mounted as depicted in the Council plan.

A drawer was added in order to stock materials, such as additional weights. These weights are constructed with hooks and eyes so that they can be attached in tandem.

It is of interest to note how additional pieces of apparatus are utilized to enhance mechanotherapy of the hand. Attached to the wall in the vicinity of the hand table is Mennell's[9] system of water bottles, one mounted above the other, each in a wood case, the front panels of which are glass. With a sphygmomanometer bulb, water

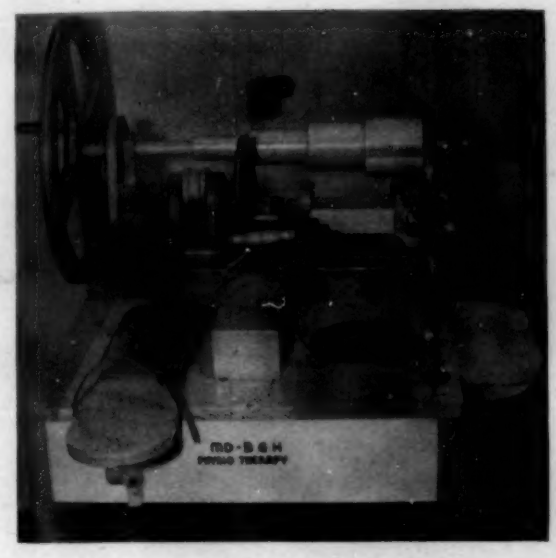

Figure 2. End view of table.

is pumped from the lower bottle to the upper. Unless the siphon system is broken by pumping all the water out of the lower bottle, a release of pressure will cause the water to siphon back into the lower bottle. This affords a sufficient rest period between activity. It has been noted that for flexion of the fingers this piece of apparatus is unexcelled in interest, comparison and competitive spirit.

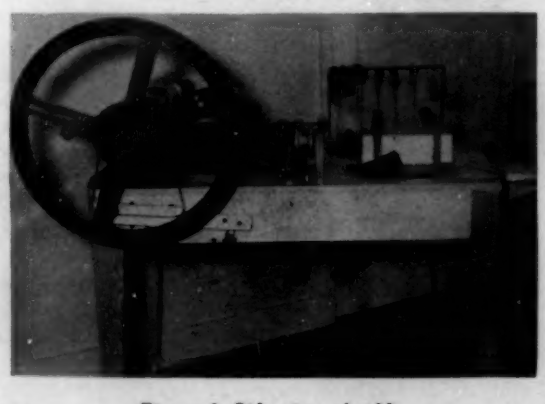

Figure 3. Side view of table.

R. Tait MacKenzie's famous paper crumpling exercise[2] affords an excellent means of securing activation of the flexors of the fingers. A Masonite board drilled with regularly spaced holes and supplied with long laces is used as a lacing board affording grasping exercise between thumb and any of the four fingers. A large spool of yarn is used effectively for circumduction of the wrist. A length of yarn is unraveled, and with the elbow pressed firmly against the side, the spool is rewound. The physical therapist makes certain that the opposite hand holding the spool is kept immobile. A block of wood with regularly spaced holes for various size screws affords an excellent activity for pronation and supination of the wrist. Different size screw driver handles are required for those with limitation of finger motion. A salvage gauze reclamation project which requires unraveling of washed gauze to be placed on stretcher boards has been found an excellent activity for exercise of the hand.

A description of the many exercises to be performed on this table is adequately noted by MacKenzie.[2] The several modifications suggested by the writer readily lend themselves for use and hardly need description.

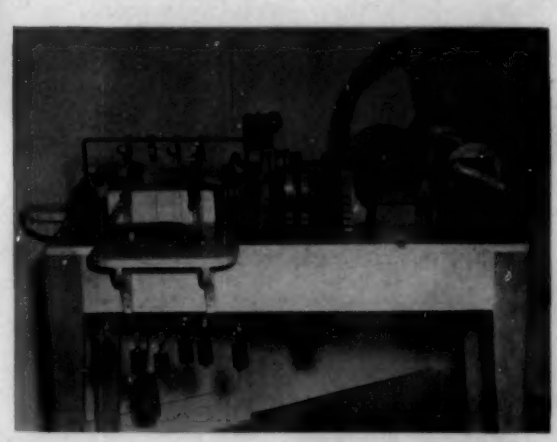

Figure 4. Side view of table.

It must be remembered that mechanical equipment is yet to be devised which can replace voluntary muscular effort. However, properly supervised and used intelligently, mechanotherapy is a valuable adjunct in a curative exercise program.

REFERENCES

1. Kessler, H. H.: Amputations and Prostheses, Am. J. Surg. 43:560-572, Feb. 1939.
2. MacKenzie, R. Tait: Reclamation of the Maimed. New York: The MacMillan Co., 1918.
3. Osborne, S. L.: Personal Communication.
4. Coulter, J. S.: Personal Communication.
5. Osborne, S. L.: Personal Communication.
6. Kanavel, Allen B.: Infections of the Hand, 7th Ed. Philadelphia: Lea and Febiger, 1939.
7. Osborne, S. L.: Personal Communication.
8. Council on Physical Medicine: Plan for Kanavel Table. Chicago, American Medical Assiciation.
9. Mennell, J. B.: Physical Treatment by Movement, Manipulation, and Massage, 4th ed., Philadelphia: The Blakiston Company, 1940.

Gross Anatomy for Students of Physical Therapy[1]

Barry J. Anson, Ph.D. (Med. Sci.)

The course in gross anatomy presented for students of physical medicine at Northwestern University Medical School extends through a full quarter, eleven weeks in length, and is, for the nonvisceral part of the human body, similar in every respect to the course taken by regular medical students.[2]

The course occupies four mornings of the autumn or summer quarters, each quarter being ten or eleven weeks in length. Including time for lectures and demonstrations, this brings the total number of hours to approximately one hundred thirty. Totally, twenty regular lectures are given; these are introductory to an even more extensive set of thirty or more prosection-demonstrations. Wherever possible the dissection of a region is completed within a single week, the closing day of the week being left open for perfection of the dissection and for review.

All aspects of the course are handled in such a way that they direct attention to the dissection. The lectures are designed to prepare the students for the work of a two-day or a three-day period; always illustrated by an ample set of lantern-slides, they present the generalities of local structure, offer suggestions as to dissection-procedure, give details where conventional descriptions are inadequate or misleading, and include brief commentary on the dependence of surgical procedure on bodily architecture.

While lectures are given but once or twice a week, prosections are an almost daily feature of the course. For example, all volar antibrachial anatomy is discussed in a single lecture, but three demonstrations, on as many days, are given to present the morphology of the area, in the following order: 1) superficial veins, cutaneous nerves, antibrachial fascia, superficial layer of flexor-pronator musculature; 2) intermediate muscular stratum with vessels and nerves of the radial and ulnar sides; 3) deep muscles, with vessels and nerves of median position. The prosecting is done by sophomore students in the medical school; the lectures and demonstrations are given by full-time teacher of professorial rank. In the laboratory a graduate student assists in instruction.

Examinations of two types are given, namely, the written and the laboratory practical. The one-hour, written examinations are mimeographed, and are of fill-in type—designed to obviate the composing of lengthy, and often evasive, text; they frequently require the preparation of simple summarizing diagrams. They are so distributed in the calendar as to fall at a time when an anatomical area has been completely studied. The brief examinations in the laboratory are planned to test a student's knowledge of his immediate assignment, of general structural principles as evidenced in a particular area or region, and of the sources (beyond the dissection area) of the larger vessels and nerves. Each of these types of examination has its special function; the written examinations enforce full use of textbooks, while the practical exercises insure carefulness in current dissections and adequate terminal review and correlation. When either is omitted, study from textbook or from specimen suffers; the student lacks amplitude when practical examinations alone are given, and tends to be inexact when the specimens themselves are not employed.

In addition to the assigned and required dissections, a certain additive set is put in the category of optional. These, ten in number, are discussed in as many lectures and accompanying demonstrations and cover the following subjects: abdominal musculature; spinal cord and meninges; abdominal viscera *in situ;* blood-supply of digestive tube; kidneys and suprarenal glands (including blood-vessels); aorta, vena cava, thoracic duct and sympathetic trunk; lungs and heart; suboccipital musculature; facial musculature, facial and trigeminal nerves; muscles of mastication.

An instructive series of weekly meetings is arranged by a member of the Department of Physical Medicine, the purpose of which is to

[1]Contribution No. 452 from the Anatomical Laboratory of Northwestern University Medical School, Chicago, Ill.

[2]The lectures and demonstrations are equal in number and content to those of the medical course; prosections are carried out with like care; the total number of hours is equal; the examinations are usually the same.

apply the results of laboratory observation to the problems of clinical care. It may be taken as a fact established beyond threat of denial that a clinical technic is best when it pays greatest heed to the normal fabrication of the human body. By the same token it is true that refinement of anatomic concepts of structure makes for less disturbing treatment. When the physical therapist is armed with detailed foreknowledge of structure she is equipped to move with ingenuity and surety. A series of informal anatomic-surgical discussions, of the sort just mentioned, in giving the student tangible objectives, heightens his interest, increases his desire to dissect and to observe accurately and encourages the adoption of a mature attitude toward his laboratory obligations.

For the guidance of those who are confronted by the problem of organizing a course in anatomy for physical therapists, the following simplified schedule may be found serviceable. This schedule may be regarded as satisfactorily stabilized, since it has been followed in the teaching of ten successive classes.

1ST WEEK

A. *Back*

1. Broad muscles; 1st layer. — Lecture, Demonstration
2. Broad muscles; 2nd and 3rd layers.
3. Long axial muscles. — Lecture, Demonstration
4. Completion of dissection. Review.

2ND WEEK

B. *Chest, etc.*

1. Pectorales, etc. — Lecture, Demonstration
2. Intercostal muscles, etc. — Lecture, Demonstration
3. Axillary space. Subclavicular region. — Lecture, Demonstration
4. Completion of dissection. Review.

3RD WEEK

C. *Neck*

1. Neck: triangles. — Lecture, Demonstration

D. *Upper Extremity*

2. Shoulder. — Lecture, Demonstration
3. Arm. — Lecture
4. Completion of dissections. Review.

4TH WEEK

1. Forearm, volar aspect: superficial layer of muscles. — Lecture, Demonstration
2. Forearm, volar aspect: intermediate layer of muscles. — Demonstration
3. Forearm, volar aspect: deep layer of muscles. — Demonstration
4. Completion of dissection. Review.

5TH WEEK

1. Midpalmar region. — Lecture, Demonstration
2. Thenar and hypothenar regions. — Demonstration
3. Deep structures of palm. — Demonstration
4. Completion of dissection. Review.

6TH WEEK

1. Forearm and hand, dorsum: muscles of superficial layer. — Lecture, Demonstration
2. Forearm; dorsum: muscles of deep layer. — Demonstration
3. Hand; volar and dorsal: interossei, volar and dorsal extensor and flexor insertions. — Demonstration
4. Articulations. — Lecture, Demonstration

7TH WEEK

1. Examination.

E. *Lower Extremity*

2. Femoral region: fascia lata, etc. — Lecture, Demonstration
3. Anterior and medial femoral regions. — Lecture, Demonstration
4. Completion of above dissection (to deep level). — Demonstration

8TH WEEK

1. Gluteal region. — Lecture, Demonstration
2. Posterior femoral region. — Demonstration
3. Anterior and lateral crural regions. — Lecture, Demonstration
4. Posterior crural region: superficial layer intermediate layer. — Lecture, Demonstration

9TH WEEK

1. Posterior crural region: deep layer. — Demonstration
2. Dorsal pedal region. — Lecture
   Plantar pedal region: plantar aponeurosis. — Demonstration
3. Plantar pedal region: 1st and 2nd layers. — Lecture, Demonstration
4. Plantar pedal region, deep dissection: 3rd and 4th layers.

10TH WEEK

1. Articulations. — Lecture, Demonstration
2. General review.

11TH WEEK

1. Examination.

Stump Sock Drier for the Amputation Patient

A definite need has arisen for a practical method of washing and drying stump socks, and Major M. M. Kissane, M.C., reports that the Amputation Center, Lawson General Hospital, has developed one which has been instituted as an occupational therapy project, each patient making one or more for himself. The drier is constructed of salvaged material, sheet metal or wood, duraluminum being preferred. The construction may vary depending on the gage of the metal available and to suit the individual patient. The size and arrangement of the air holes follow no specific pattern. Construction is accomplished from a set of patterns from the various sized stump socks. The drier affords adequate circulation of air through the sock and decreases the usual time required for drying by as much as half. Two small slits at the upper end of the drier allow the sock to be pinned in position so it will not wrinkle or sag during the drying process. Patients using this type of drier have found they can get along well with the prescribed issue of three pairs of stump socks, using clean socks daily.

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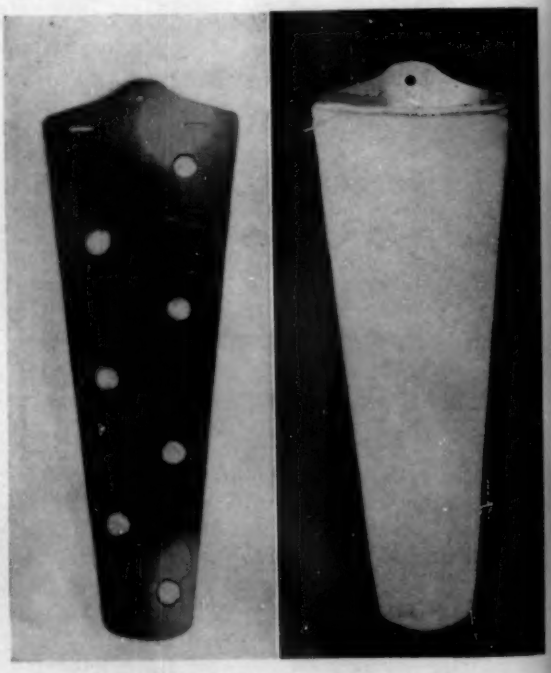

Fig. 1. Stump Sock Drier

Reconditioning Program in an Overseas General Hospital

Paul Kunkel, Capt., M.C.

A reconditioning program was established in this hospital in April 1943. The objectives are to return fit personnel to duty, reeducate those with a disciplinary problem hiding under the cloak of illness, check the diagnosis of the ward officer, evaluate the limitations placed on individuals by an organic lesion, restore confidence and health by early disposition and active treatment, and preserve the morale of patients awaiting evacuation to the United States. In the latter group, psychotherapy, physical therapy, graded physical exercise, strict discipline, and occupational therapy are instituted.

The area for those who are to return to duty is isolated in this hospital to prevent these soldiers' associating with those on wards or awaiting transportation to the homeland. These soldiers wear "fatigues" and are quartered in tents. Facilities are provided for baseball, touch football, volleyball, basketball, horse shoes, ping-pong, boxing, and bag punching. Gardening and carpentry tools and a tractor are provided. The program is directed by a medical and a surgical officer assisted by an infantry officer and seven noncommissioned infantry officers who supervise 200 men. All patients who have been hospitalized more than a week and who will return to a combat unit must participate in the reconditioning program; others not in combat units who are unable to continue duty for any reason are frequently enrolled. Before assignment to the program the patient is studied by the ward officer, who makes recommendations. When enrolled, he is informed that he is no longer in the hospital and will again take up the rugged life of a soldier. He is given no medication or sedation. He never sees his ward officer again unless so requested by medical officers in charge of the reconditioning program.

Sick call is compulsory each second day, after activity, and it is there that the patient's complaints and the recommendations of the ward officer are evaluated and the patient treated. The patient who complains of swelling of his legs after a hike is taken on a 15-mile hike and then examined. Those who complain that their joints become red, hot, and swollen with exercise, are exercised and evaluated. Should the test of activity reveal incapacitating emotional or physical responses, the patient is returned to his ward officer for further treatment. An infantry officer and noncommissioned officers were found to be superior in ability to command the soldier to do what the medical officer asked of him. Once the cadre believed in and understood the objectives of the medical officer, they exercised their ability in commanding men. One intensely personal and sympathetic sergeant was placed in command of the weak, convalescent, typhus patients and the psychoneurotics who need encouragement and gentle pressure. Two Southerners commanded the colored. One fiery, clever, and determined sergeant commanded those with disciplinary problems. Patients who deliberately exaggerated or pretended to be ill for the purpose of avoiding duty will be referred to as the "malcontented." This sergeant became effective in handling this group only after he was satisfied that the medical decisions concerning the ability of these individuals to do the job assigned were considered and usually accurate.

Medical Supervision

The program allots time for calisthenics, athletics, hikes, varied work details, and rest and recreation. There is complete medical supervision of all activities. The patients are divided into groups, the physical requirements of which vary, and progress through the groups as their physical and mental stamina increases. The average stay ranges between three and seven weeks. Complete military formation with roll call is held at reveille and retreat, and before and after each period of activity. Tent and personnel inspection are held immediately after breakfast. All phases and aspects of military courtesy and discipline are rigidly enforced and, when the occasion demands, small groups are given classes in these

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subjects.

Up to May 1, 1944, 22 per cent of the total admissions enrolled in the program. They represent 31 per cent of those returned to some form of duty. No more than 3 per cent have been "boarded" after enrollment. This low figure is a high tribute to the ward officer who selected those patients who he felt should be able to do duty.

The reconditioning program has furnished a basis on which line organizations may operate in obtaining useful services from soldiers who complain of illness. After investigation in the hospital, the reconditioning program proved that the soldier could work or that a specific limitation should be placed on his work.

Since patients acutely ill usually did not gravitate to the general hospital, the patient who came through the evacuation chain of hospitals frequently had learned bad habits. Too often, from the first day in hospital and for the ensuing several months, he had been excused from all discipline. He had developed a convenient symptom pattern, was lazy, and firm in his belief that if he continued to ache, limp, or vomit, he would be "boarded" home. Often he had been informed in previous hospitals of his probable disposition. He arrived by ambulance, shouldered his barracks bag, and demanded direction to the post exchange.

Organic disease was the least difficult to manage. Scrub typhus patients may retain a labile vasomotor apparatus for several weeks. Those seen here had lost much weight and strength and had less stamina than any other group. The majority of their symptoms were conditioned by undue attention to their hearts in the admitting hospitals. Graduated exercises indicated that their exercise tolerance could be built up rapidly. As an instance, one group had a slower pulse rate after a short hike than before it. They gained weight normally and were successfully rehabilitated. Patients who were filariasis suspects were exercised vigorously. Physical activity frequently reproduced the manifestations of this disease and thereby determined disposition. Those with simple varicoceles were unaffected. Skin diseases were observed under exercise and conditions of sweating while the soldier worked at dusty jobs. If trichophytosis was uncontrollable or seborrhea recurred, the patient was returned to the ward. Patients with indigestion, whose gastrointestinal x-ray examinations revealed no abnormality, were commanded to carry on with increasing activity on a regular diet. They usually gained weight and stamina. Patients with strains and sprains, new and old, were given graduated and corrective calisthenics under supervision until free of pain. Patients with mild asthma were exposed to dust and pollens of the fields during long hikes, and their disposition was recommended on the basis of the objective findings. The actual improvement in this entire group—their weight gain, stamina, appearance, and well-being—was striking.

The psychoneurotics require refinements of management, with emphasis on mildly tiring physical exercise and encouragement. Later, long interviews to discover the conflicts or to enlighten the patients as to the genesis of their symptoms may be applicable. Forceful reeducation is employed when they are fully convalescent. The psychoneurotic is genuinely ill. At any task he works diligently until it is finished, and he tries to do it well. The more intense his efforts, the more prominent his symptoms, in addition to other stigmata such as dilated pupils, cold and moist palms, tremor, tachycardia, sweating, rapid shallow respirations, and obvious fatigue out of all proportion to his output of energy. He has usually been stalled on the wards in the evacuation chain of hospitals for months, eating poorly, sleeping in the day, and receiving sedation at night. Under the physical routine of the reconditioning program, he regains his appetite, rearranges his sleeping habits, gains weight, strength, and ambition, and develops confidence, insight, and a desire to soldier. Occasionally, a severe psychoneurotic develops more anxiety under the routine and is returned to the ward for disposition.

THE "NO DISEASE" GROUP

The "no disease" group taxes our ingenuity to the utmost. Hospitalization in this group is not always the fault of the soldier. Errors in judgment and lack of courage by the medical officer in addition to poor diagnostic facilities may be responsible. Usually this group is composed of the disciplinary problems and the "malcontented." The first interview with this group has proved a valuable diagnostic aid. The patient's arrogance, defiance, surliness, and avoidance of military courtesy and discipline during his efforts at selling his symptoms are characteristic. He demands treatment more or less at his own direction and convenience. When commanded to perform a task, he does not try, does not finish his job, and becomes surly, critical, and indignant. He may threaten to sue the physician or hospital, write his congressman, and expose his inhumane treatment by the printed word and

often may demand an interview with the Inspector General. He is usually well nourished and healthy and has none of the physical stigmata of psychoneurosis, such as tremor and wet palms. He is detected by his behavior even before he is seen to lose his limp while running for the "chow" line, or to stand erect for the first time in the shower bath. He frequently assumes a posture or behavior pattern that is extremely uncomfortable, and, if observed over a long enough period, is unable to maintain it. Athletic contests or distasteful work such as transporting garbage usually facilitates making the diagnosis. A crafty and sometimes criminal type may defy diagnosis for weeks until exposed by several brisk medicine ball "work-outs" after lunch. Immediate suggestive therapy after exposure in front of the group effects a miraculous and permanent cure. Distasteful details such as denial of post entertainment, post exchange privileges, passes, and sick leaves form an important disciplinary armamentarium of the medical officer in charge. The "malcontented" with habit vomiting without loss of weight or strength or signs of vitamin deficiency, ordered on a 15-mile hike with the medical officer, has it proved to him that he can make the hike with a stomach tube in place. The "malcontented" with diarrhea without demonstrable cause learns that he can do whatever is asked of him without weight loss or loss of strength.

Occasionally individuals are seen who entered the hospital with organic disease, developed anxiety, reactive depression, loss of will, and a conscious desire to avoid military duty. This sequence may be arranged in any order, but at any given time one predominates. Demanding activity, strict discipline, and subjection to a routine also frequently changes and reverses the predominant pattern. Treatment follows the methods outlined above. Many new facts are discovered by medical officers in the reconditioning area, but, insofar as possible the recommendations of the ward officer are carried out and his original diagnosis adhered to with qualification only in the progress notes.

The patient suffering from organic disease is found to exhibit true concern and alarm and is anxious to have something done for him. He will accept and believe that all measures are employed for his cure and rehabilitation and will be happy when they are complete. The psychoneurotic tries hard, finishes his job, and improves with suggestion and graded increase in activity. The hysteric is peaceful and placid and views the situation and the efforts spent on him with true amusement. The "malcontented" presents his symptoms forcibly and with belligerence and must be exposed. The rarely found recalcitrant individual is carefully studied and evaluated and the motivating factors considered. Because of the public nature of the challenge and the influence on the entire group, the necesary measures are employed to make him a model soldier instead of avoiding the challenge.

The results of the reconditioning program have cut the readmissions to this hospital for the same symptoms to a negligible number. Those who have gravitated back through the hospital evacuation chain have been reduced by the same magnitude. The demands it has put on the soldier to perform his military duties are known all along from the advance base to this general hospital. The soldier who is again hospitalized after return to his organization is promptly returned to duty, because it has been proved here that he is capable of doing duty. This is further evidence by the fact that not more than 3 per cent of the total enrollment have been "boarded" in this hospital.

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSIOTHERAPY REVIEW, 4741 N. Paulina Street, Chicago 40, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given. Since the magazine goes out as second class mail, copies are not forwarded.

EDUCATION SECTION

Educational Plans for Returning Physical Therapy Veterans

This series of plans presents descriptions of specific educational opportunities for returning physical therapy personnel.

Bouve-Boston School of Physical Education, Boston, Massachusetts

I. No refresher courses in physical therapy will be offered.

II. The opportunity will be offered to physical therapists who do not hold a college degree to complete the necessary requirements and receive from Tufts College a Bachelor of Science in Education degree. The length of time required will vary with the credits offered but probably will include one year and a summer session. Such students will be permitted to attend lectures given to the physical therapy students in our regular course, if they desire to do so and as the schedule permits.

Childrens Hospital Society, Los Angeles, California

We are unable to plan a graduate course for physical therapists other than our own graduates, separated from the service. Our students at the successful completion of their apprentice course received a certificate. If they desire the school's diploma they must return for three additional months of clinical practice in handling children, in Kenny technic and in physicians' offices. With this refresher work we feel they will be ready for civilian employment.

Columbia University, New York, N. Y.

The Department of Physical Education in Teachers College, Columbia University, is offering a program in the specialized area of Corrective Physical Education. This program will lead toward the Master of Science degree.

Candidates for the offering must have had undergraduate work in physical education or must have served within civilian life or within the Army or Navy as specialists in "corrective physical education," in "reconditioning," in "rehabilitation," in "physical therapy" or in any allied and recognized field.

The candidates will be held responsible for eight points in Foundations of Education. He will have a major of eighteen points within the Physical Education Department; 12 of these points will be prescribed in the specialized area of Corrective Physical Education and Rehabilitation. There will be allowance for at least eight points in electives.

Duke University, Durham, North Carolina

Study of Marie-Strumpell Arthritis

1. Diagnosis
2. Evaluation of clinical findings
3. X-ray interpretation
4. Ward care
5. Physical therapy technic including special exercises and correction of deformity
6. Braces and home therapy

A graduate physical therapist should be capable of completing the course within six weeks. The tuition is $50.00.

Graduate course for physical therapists

Duke University School of Medicine will offer a six months' graduate course in physical therapy, starting date to be announced later. Candidates for admission must be American Physiotherapy Association or Senior Registry members, in addition to having academic, health and personal qualifications which meet with the approval of the Committee on Admissions.

The course is planned to meet the needs of graduate registered physical therapists who wish to receive further instruction. In line with the general present day tendency to develop psychosomatic medicine, it emphasizes the neuropsychiatric aspects of physical therapy. The curriculum includes attendance at "staff conference" at which time a case on the psychiatric ward is presented and discussed; special lectures by psychiatrists on "personality," "adjustments," "tension," "anxiety," and other related topics. The most significant part of the course is the practical work with certain orthopedic patients who need physical therapy. In addition to administering the physical therapy treatments, the physical therapist works on an apprentice basis with the psychiatrist, developing an understanding of the role that

anxiety or other emotions play in the patients. Under guidance, the student develops a knowledge of how to reinforce the effects of the physical procedures with a proper appreciation of the emotional factors in the situation. The work is intensive and the personal contacts between the students and psychiatric staff is close.

In addition to this emphasis, opportunity is available for refresher work in hydrotherapy and other subjects with the students in the undergraduate course in physical therapy. It is possible also to enroll as a special student in courses for academic credit in the regular curriculum of Duke University.

The graduate course in physical therapy is open to both men and women. Tuition fee is $150.00, and a certificate is granted on completion of the six months' course.

For further information or application blank, write to the Division of Physical Therapy, Duke University School of Medicine, Durham, North Carolina.

Harvard Medical School, Boston, Massachusetts

A. Infantile paralysis—three months. Tuition—$150.00.

Clinical training in the different phases of the treatment of infantile paralysis.

Facilities Available:

1. Harvard Infantile Paralysis Commission
   a. Hospital clinic three times a week—average 25 to 40 cases—yearly total of individual cases—over 1000.
      Two orthopedic surgeons and staff of A. P. A. physical therapists, muscle examinations and treatments.
   b. Field clinics at treatment centers in surrounding towns with staff physical therapist.
   c. Functional Training Room—for severely handicapped patients, training in normal activities, also gait training.
2. Children's Hospital Orthopedic Wards
   a. Early cases of poliomyelitis, number depending on time of year. Pre-operative and early postoperative cases.
   b. Pool and tub for underwater exercises.
3. In early Fall months, Children's Hospital Isolation Wards.
4. Case movies for study.
5. Wellesley Convalescent Home—postoperative or early convalescent cases.

B. Experience in children's orthopedics, including infantile paralysis. Six months. Tuition—$250.00.

Clinical Facilities:

Same as above, including other types of orthopedic cases on the wards and in the pool.

6. Physical therapy outpatient clinic for orthopedic cases.
7. Observation in general orthopedic clinic including plaster work.
8. Special clinic for faulty posture and scoliosis.

Can academic credit be arranged for these programs:

a. Toward a B.A. or B.E.—No
b. Toward advanced degrees—No

Number of trainees acceptable at one time—2.

Note: These openings are planned especially for ex-service physical therapists who wish experience in these particular fields.

Inquiries regarding possible dates should be sent to:

Assistant Dean, Courses for Graduates
Harvard Medical School—25 Shattuck St.
Boston 15, Mass.

and should give full information about previous training of the applicant.

Physical therapists who wish to work for higher degrees may be interested in writing to the Secretary, Harvard School of Public Health, 55 Shattuck St., Boston, for information about courses in public health.

Certain courses in medical sciences given in the Medical School are open to candidates for higher degrees in the Harvard Graduate School of Arts and Sciences. Description of courses appear in the Medical School catalogue, and information regarding admission may be obtained from the Division of Medical Sciences of the Graduate School, University Hall, Cambridge, or from the Dean of the Graduate School, Radcliffe College, Cambridge 38. These courses are not connected with the physical therapy courses.

Mayo Clinic, Rochester, Minnesota

Post-War Refresher Courses and Graduate Study in Physical Therapy Technic—Section on Physical Medicine

Starting on July 1, 1946 the Section on Physical Medicine at the Mayo Clinic will offer a three months' certificate course especially designed as a refresher course for graduates of approved courses in physical therapy technic who have had service in the Army or Navy and are desirous of becoming reoriented to civilian work. This course will include advanced anatomy, corrective exercise, massage, physiology, pathology, neurology and psychiatry, and special clinical lectures in electrotherapy, light therapy and hydrotherapy.

A journal club and weekly round table conferences will be conducted, and special training in the care of patients with arthritis and in physical therapy as related to public health and school problems will be provided. Students who desire simply a short refresher course can complete this work in three months. No tuition will be charged for this first three months of training, and the class will be limited to twenty students.

Students who are desirous of obtaining advanced credits can continue thereafter in a regular credit course leading to a Master of Science degree. The University of Minnesota with which the Mayo Clinic is affiliated is prepared to offer graduate training in physical therapy for persons holding a bachelor's degree and a certificate from an approved school. Properly qualified persons may apply for admission to candidacy for the Master of Science degree in anatomy, physiology or biophysics in accordance with the usual rules and regulations of the graduate school of the University of Minnesota. The work in the basic sciences will be offered on the University campus in Minneapolis, and clinical training will be available either in the Section on Physical Medicine at the Mayo Clinic or in the University Hospital at Minneapolis.

New York University and the Institute for the Crippled and Disabled, New York, N. Y.

New York University regrets that it cannot offer "refresher courses" in physical therapy or admission to individual courses of the regular physical therapy curriculum—since staff and facilities are taxed to capacity to accommodate fulltime candidates for the physical therapy certificate.

To be more encouraging, the Institute for the Crippled and Disabled (affiliated in its medical department with New York University) will accept every six weeks, exclusive of the three summer months, two registered physical therapists or members of the American Physiotherapy Association for observation and practice in the field of rehabilitation. A personal interview is required and no credit will be allowed. Application should be made to: Miss Mary Eleanor Brown, Institute for the Crippled and Disabled, 400 First Avenue, New York 10, N. Y.

The Institute for the Crippled and Disabled also would welcome expression of serious interest in a proposed June "refresher course" in the field of orthopedics. If such a course were offered, it would consist primarily of a review of muscle testing, therapeutic exercise, relaxation therapy and crutch training, a knowledge of kinesiology being prerequisite. Only members of the American Registry of Physical Therapy Technicians or of the American Physiotherapy Association would be considered and no credit would be given. Registration would be limited to fourteen. Application should be made to: Miss Elizabeth C. Addoms, Medical Department, Institute for the Crippled and Disabled, 400 First Avenue, New York 10, N. Y.

Both of the above offerings at the Institute for the Crippled and Disabled are open to discharged members of the armed forces only. No tuition will be charged.

It may interest some returning service men and women to know that work of university level completed with excellent grades in approved schools of physical therapy (plus specified courses completed in army or navy training schools) may be evaluated and credit transferred toward bachelors', masters' or Ph.D. degrees in the School of Education of New York University. However, registration is distinctly limited and acceptance for any particular session cannot be assured even to those well qualified. Application for university admission should be made to:

Admissions Office, New York University,
Washington Square East, New York 3, N. Y.

Northwestern University Medical School, Chicago, Illinois

Northwestern University Medical School offers an opportunity for properly qualified students to work toward a Master of Science degree in Physical Therapy. Applications from students with the following qualifications will be given consideration.

(a) Bachelor of Science degree or its equivalent, from an institution of accepted standing.

(b) One year course in zoology, physics and chemistry.

(c) A certificate in physical therapy from a course equivalent to that given at Northwestern University Medical School.

(d) General requirements for admission to the Graduate School of Northwestern University.

One academic year is required for the Master of Science degree. The work includes (a) courses in physiology of the blood, circulation, respiration, digestion, metabolism and central nervous system. The student must elect a course in phar-

macology or special advanced work in anatomy relative to the student's selected field of activity. These courses are given by the departments of physiology, pharmacology and anatomy of the Medical School. Credit 12.9 semester hours. (b) Research in Physical Therapy. The student will be required to complete a research problem in physical therapy which is selected in consultation with the Department of Physical Medicine. Credit 12 semester hours. A thesis must be presented to complete the requirements for the Master of Science degree.

A course for instructors of physical therapists has been arranged at Northwestern University Medical School. This course is designed to prepare experienced physical therapists who are interested in the teaching field for instructors in approved schools of physical therapy.

The course consists of: (1) A review of the basic medical sciences, anatomy, physiology and pathology given in the respective departments of the Medical School. (2) A review of accepted theories and technics and methods of teaching both theory and technics of physical therapy procedures. (3) Preparation of outlines for courses including sources of content. (4) Practice teaching in classroom and clinics. (5) Organization and administration of physical therapy courses. (6) Selected general education courses.

The content of the course is more or less flexible and can be arranged to suit the applicants' individual needs, depending upon their qualifications. It extends over a period of 12 months.

A small number of teaching fellowships are available and the material of the instructors course may be covered on a teaching fellowship basis extending over a period longer than 12 months.

At this time Northwestern University Medical School is unable to offer any organized short "refresher" courses in physical therapy.

Richmond Professional Institute of the College of William and Mary and the Baruch Center of Physical Medicine, Medical College of Virginia, Richmond, Virginia

Registered physical therapists with a baccalaureate degree who hold the certificate or diploma in physical therapy of an approved school, and who are accepted by the Medical College for graduate study, may enroll for a Master of Science degree. The minimum residence requirement of the Master's degree is one year (36 weeks). At least one-half of the graduate work must be done within the department of the major. A thesis is required and the candidate must have an examination upon the graduate work offered in support of his candidacy of a second degree. Major emphasis in this program is upon the basic sciences and the successful completion of a suitable research project.

Plans are under way for the establishment of an alternate type of second degree to be offered jointly by the Richmond Professional Institute and the Medical College of Virginia. Major emphasis in this course will be upon graduate study in the social sciences, education, advanced clinical practice in the use of physical agents for diagnosis and therapy, and the study of problems related to the organization and administration of a physical therapy department. In this course there will be a more limited opportunity for graduate study in the basic sciences, restricted either to applied physiology, living anatomy or medical physics.

A course in orthopedic occupational therapy designed specifically to meet the needs and interests of physical therapists is to be offered during the second term of the 1945-46 school year by Miss Sue Hurt, Associate Professor of Clinical Occupational Therapy at the Medical College of Virginia and Director of the Occupational Therapy Training School of the Richmond Professional Institute.

The Baruch Center of Physical Medicine is prepared to arrange group and/or individual short term periods of study for physical therapists now in military service. These are intended especially for emergency course students whose training and experience have been limited to Army hospital service, and those who need guidance in preparation for certification by the American Registry of Physical Therapy Technicians. A one month course will be offered each month. This will be mainly practical in nature and consist of technical instruction and well supervised practical work in the physical therapy departments of the Center. In addition, there will be offered at least 16 hours per month of formal lectures or seminars. The topics covered will be adjusted to the individual needs of the students. The number of students enrolled will be limited to three during any one month, and the stay may be prolonged up to a total of three months. The duration of the stay will be conditioned by the number of applicants. A fee of $25 will be charged for the first month, and $15 for each following month.

The Medical College of Virginia Hospital and

its affiliated units, St. Philip Hospital and Dooley Hospital, have a bed capacity of approximately 800, and some 70,000 patient visits are made to the Outpatient Clinic annually. All branches of physical medicine are represented in the clinical program and the Baruch Center is adequately staffed to give instruction in both the nursing procedures and physical therapy technics utilized in the modern management of acute and convalescent poliomyelitis.

Stanford University, California

The Division of Physical Therapy at Stanford University offers programs of study in physical therapy on the undergraduate and graduate level. Students may be candidates for the A.B. and A.M. degrees. A Ph.D. minor also may be taken in physical therapy with the major field in a related area such as physiology, anatomy, physics.

A student who is a graduate of an approved course in physical therapy but who does not have a degree may become a candidate for the A.B. degree in this field providing he or she meets the requirements for admission to the University on an undergraduate level. The program for such a student is developed through conference with the director on the basis of former training and experience. A "C" average must be maintained during each quarter of study.

A graduate who has completed an approved course in physical therapy or who is a member of the American Physiotherapy Association and/or the American Registry of Physical Therapy Technicians may become a candidate for the A.M. degree in physical therapy. The program can be completed in three quarters of residence providing the undergraduate program was comparable to that at Stanford University. Each student's program is developed through conference with the director and is based upon former training and experience. A "B" average must be maintained during each quarter of study and a thesis is required.

A limited number of teaching fellows can be accommodated. These students should be candidates for an advanced degree and should be interested primarily in entering the teaching field.

Special programs of one or more quarters' duration may be arranged for qualified physical therapists who are interested in further work in basic science and other related fields, or special courses in physical therapy such as "Physical Therapy in the Treatment of Infantile Paralysis," "Physical Therapy in Cerebral Palsy," "Study of a Special Problem in Physical Therapy," etc. The prospective student should write to the director, or confer with him if possible, concerning the field of special interest and the time at which such courses can be arranged.

Students are admitted at the beginning of each quarter. The classes are open to both men and women. The entering dates will be announced later.

Tuition and fees are at the rate of $143.00 per quarter with the exception of a quarter in which only clinical work is undertaken. The tuition for a clinical quarter is $123.00. The average cost of living accomodations is $75.00 per month.

All inquiries should be sent to the Director, Division of Physical Therapy, Stanford University, California.

The University of California Medical School, San Francisco, California

The University of California Medical School offers a course to students wishing to major in physical therapy. The prerequisite is completion of three years in physical education, which meets the requirement of the University of California. The fourth year covers the course in physical therapy and leads to a Bachelor's Degree. The year is divided into three semesters. The first two semesters include theory, seminars, and demonstration. The third is devoted to practical training in departments of physical therapy.

Students majoring in nursing, or biological sciences are accepted if they can meet the prerequisites necessary for completion of three years of work which include Chemistry 1A, (240 hours); Physics 2AB-3AB, (180 hours); Anatomy 102 (80 hours); Physiology 1A and 1C, (144 hours).

Students having the Bachelor's Degree are acceptable provided they have the above prerequisites.

A Master's Degree is not offered in physical medicine. It can be obtained in anatomy, physiology or biophysics by making application to those departments. It can be taken in work related to physical medicine.

University of Kansas School of Medicine, Kansas City, Kansas

We find it impossible to establish any graduate courses at this time.

University of Pennsylvania (Graduate Hospital of), Philadelphia, Pa.

Although no refresher courses for advanced work in physical therapy are organized, we are nevertheless in a position to give qualified physical therapists advanced training in the various technical procedures. Under certain circum-

stances it also might be possible to provide advanced instructions in certain basic sciences such as anatomy and physiology. At present there is no provision at the University of Pennsylvania for giving academic credit for work in physical therapy.

University of Wisconsin Medical School, Madison, Wisconsin

Degree Course in Physical Medicine

A four year course leading to the degree of Bachelor of Science in the School of Letters and Science and a Certificate in Physical Medicine in the Medical School.

For entrance into this course a student must satisfy the general admission requirements of the University. The course is under the joint control of the Schools of Letters and Scence and Medicine and the Assistant Dean of the Medical School is adviser to these students.

The curriculum requirements are the completion of 124 credits and at least 124 grade points, the subjects meeting the following requirements:

English—12 credits or English 6 credits and history 6 credits.

Science—39 credits to include at least one course in each of the following subjects: General chemistry, physics, zoology, anatomy, physiology, physiological chemistry, kinesiology.

Psychology—10 credits

Foreign language—14 credits to be earned in college, not more than 8 of which may be in the first year college courses; or intermediate knowledge in one foreign language as disclosed by an attainment examination

or

Social Studies—14 credits

Speech—6 credits

Child Development—2 credits

Physical Therapy: theoretical and technical training—30 credits to include courses in applied anatomy, pathology, medical sciences, massage, therapeutic exercise, electrotherapy, hydrotherapy, ethics and administration, bandaging and asepsis, research technics and clinical practice.

Electives—11 credits

The senior year is a 12 month year, the last three months being spent full time in the treatment of patients.

Certificate Course in Physical Medicine

The certificate course for physical therapy technicians is approved by the Council on Medical Education and Hospitals of the American Medical Association. Its duration is 12 months and begins in September of each year.

Admission. A minimum of 60 college (academic) credits including courses in animal biology and physics.

Curriculum. The curriculum includes work in anatomy, clinical practice, electrotherapy, ethics and administration, hydrotherapy, massage, pathology, physiology, principles of physical therapy, psychology, therapeutic exercise, and electives.

Certificates. A certificate is issued by the Medical School at the end of the above courses to those who have successfully fulfilled all the requirements including an extensive written, oral and practical final examination. Inquiries should be addressed to Dr. Elizabeth Grimm, Service Memorial Institutes.

Master of Science Degree in Physical Therapy

Physical therapy technicians who hold a certificate in physical therapy of one of the schools accredited by the American Medical Association and who have worked for three years as physical therapy technicians under medical supervision from the date of issue of the certificate may enroll in the Graduate School of the University of Wisconsin after fulfilling all necessary requirements and work towards a master's degree in physical therapy. While the courses to be taken toward this degree may vary with the individual student, depending on the credits already obtained, the work usually requires one year and includes the following: Advanced anatomy or physiology—8 credits, advanced physical therapy (practical)—6 credits, thesis—4 credits. Undergraduate chemistry, physics, zoology and physiology or anatomy are prerequisites. In special cases it is possible to arrange for part of the work to be taken during summer sessions although it is usually more desirable for students to attend the regular session.

Master of Science in Physical Therapy and Education

Admission to the Graduate School and to graduate work in the Departments of Education and Physical Therapy. (See page 149 of the Graduate School Bulletin for Department of Education requirements. Admission requirements in physical therapy are the same as for Master of Science Degree in Physical Therapy).

Requirements

1. A minimum of 24 credits of graduate work, 12 credits in education and 12 credits in physical therapy chosen with the consent of an adviser in each department.
2. A satisfactory thesis or seminar report dealing with an educational problem in physical ther-

apy. (This may be a part of the 24 required credits).

3. A final comprehensive examination, as prescribed by the two departments concerned.

D. T. Watson School of Physical Therapy, Leetsdale, Pa.

We are planning to give each summer, when our regular students are doing practice under supervision at Medical Center, a six to eight weeks course in "Modern Treatment of Infantile Paralysis," and another in "Treatment of Cerebral Palsy" with particular reference to relaxation, rhythmic exercise, habit-training for coordination, use of simple devices to facilitate function of arms and legs, and instruction in meeting situations of daily life.

While certain basic instruction and neuromuscular review will be required of all applicants during the courses, we plan to try to adapt the last part of each course to meet the individual needs of each student.

Applicants must be graduates of an approved school of physical therapy and must be a member in good standing of either the American Physiotherapy Association or the Registry.

Annual Conference (1946) – Educational Program

The program of the annual conference will be truly educational in character. Emphasis is to be placed on technics developed during the past four years in the Army medical service. Motion pictures, demonstrations and exhibits of "gadgets" will be featured.

Opportunities for discussion of problems will be available through the crippled schools section, public health nurse section and physical therapy schools section.

Educational films will be shown. Every effort is being made to provide an outstanding educational program.

Post-War Planning

The approved schools have during the past four years rendered exceptional service to physical therapy. Our courses have been accelerated in accordance with educational policies throughout the United States. Course content however has not been reduced and the quality of instruction has remained at a high level.

There is confusion in the minds of some that the emergency course did not meet requirements. This is not true. Six months of didactic work was given covering fully the curriculum as stated in the *Essentials of a School of Physical Therapy* published by the American Medical Association. Three to six months of approved clinical experience was given in addition before a certificate was awarded. Therefore, the total course was a minimum of nine months and more frequently twelve months.

Those who received their training during the war years are fully qualified but are lacking in experience in pediatrics. A review of refresher courses offered gives ample opportunity for obtaining such experience. Others may obtain it in supervised experience on the job. We feel that as a profession physical therapy has made great strides in the past four years. Those in service developed new technics for wounded which will be invaluable in civilian life, and those at home developed technics in the care of poliomyelitis and cerebral palsy patients.

The approved schools soon will be able to deaccelerate and will incorporate new developments into the curriculum. Some of the trends are to increase the length of the course; strengthening the basic science courses and applying them more directly to physical therapy; more closely supervised clinical practice; opportunities for specialized training following the basic physical therapy course; three interneships.

The post-war years offer great opportunities and will be a challenge to us individually and as an association. We know that a sound educational program is the cornerstone of our development, and our schools will provide us with that program.

Returning veterans may wish further study toward a degree. It is conceivable that an educational program might not be in physical therapy but in taking the necessary courses for the baccalaureate degree such as mathematics, English, education. Under the G. I. Bill of Rights you have an opportunity to make up these subjects since you already have your basic physical therapy.

Schools Approved for Training Physical Therapists

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Requirements*	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
Children's Hospital, Los Angeles.	Samuel S. Mathews.	Lily H. Graham....	a-b-c	12	FebAug	$200	Diploma
College of Medical Evangelists, Los Angeles[1].....	F. B. Moor.....	A. H. Carlson.....	c	12	JanJuly	$215	Cert. or Degree
University of California Hospital, San Francisco[1].....	Frances Baker.....	Margery Wagner...	a-b	12	MarOct	$150	Certificate
Stanford University, Stanford University, Calif.[1].....	Wm. Northway.....	Lucille Daniels.....	a-b-d[2]	10	Quart.	$409	Cert. or Degree
Northwestern University Medical School, Chicago.....	John S. Coulter.....	Gertrude Beard.....	a-b-d	12	JulyOct	$300	Certificate
State University of Iowa Medical School, Iowa City.....	W. D. Paul.....	Olive C. Farr.....	b-c	9	MarSept	None	Certificate
University of Kansas School of Medicine, Kansas City, Kans..	Gordon M. Martin..	Ruth G. Monteith..	c[3]	10	FebSept	$25[4]	Cert. or Degree
Bouve-Boston School of Physical Education, Boston.....	Arthur L. Watkins..	Constance K. Greene	c[3]	36	Sept	$400 yr.	Degree
Harvard Medical School, Boston.	Frank R. Ober.....	Janet B. Merrill....	a-b-c	9	Varies	$300	Certificate
Boston University, College of Physical Education for Women, Sargent College, Cambridge, Mass.....	Louis Howard.....	Adelaide McGarrett.	H.S.	36	Oct	Varies	Degree
University of Minnesota, Minneapolis[1].....	Miland E. Knapp...	Sara E. Kollman....	a-b-c	12	Jan	$200	Certificate
Barnes Hospital, St. Louis.....	F. H. Ewerhardt....	Beatrice F. Schulz..	a-b-c	9	Oct	$200	Certificate
St. Louis University School of Nursing, St. Louis[1].....	Alexander J. Kotkis..	Sr. Mary Imelda....	a-b-c[3]	9	Sept	$250 yr.	Cert. or Degree
Columbia University, New York City.....	Wm. B. Snow.....	Josephine Rathbone.	a-b-c	10	FebSept	$480	Certificate
New York University School of Education, New York City[1]...	George G. Deaver...	Elizabeth C. Addoms	a-b-c	9	FebSept	$450	Cert. or Degree
Duke University School of Medicine, Durham, N. C.[1].....	Lenox Baker.....	Helen Kaiser.....	a-b-c	12	Oct	$200	Certificate
Cleveland Clinic Foundation Hospital, Cleveland.....	W. J. Zeiter.....	Anna Wetterhuus...	a-b-c	9	Sept	None	Certificate
E. T. Watson School of Physical Therapy, Leetsdale, Pa.[1].....	Jessie Wright.....	Kathryn Kelley....	a-b-c	12	Oct	$200	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia, Pa.[1].....	George M. Piersol...	Katherine S. Sutherland.....	a-b-c	12	Sept	$200	Certificate
University of Texas School of Medicine, Galveston.....	G. W. N. Eggers....	Ruby Decker.....	a-b-c	9	Jan	$100	Certificate
Richmond Professional Institute and the Medical College of Virginia, Richmond, Va.....	Frances Hellebrandt	Josephine Buchanan.	a-b-d	9	Sept	$200	Cert. or Degree
University of Wisconsin Medical School, Madison[1].....	Elizabeth Grimm...	Margaret Kohli.....	a-b-c	9	Sept	Varies	Certificate

*Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; H.S. = High school graduation.

[1]Male students are admitted.

[2]High school graduates accepted for a four-year course leading to A.B. degree; students admitted quarterly and tuition is $143 per quarter.

[3]High school graduates accepted for four-year college course.

[4]Nonresidents charged additional fee.

The Physiotherapy Review

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This year the American Physiotherapy Association celebrates twenty-five years of growth and achievement. The progress of physical therapy has been largely guided by this organization which has consistently endeavored to establish and maintain high professional standards.

An obvious indication of our growth is the increase in membership which now is ten times that with which the organization began—a tremendously rapid increase having been made during the years of war.

Great changes also can be noted in THE PHYSIOTHERAPY REVIEW. From its beginning as a small magazine with few articles it has grown to become a scientific publication of world-wide repute. Beginning in this issue is the story of the American Physiotherapy Association, written by Ida May Hazenhyer. This history will be continued throughout succeeding issues of this anniversary year. Also, we plan to have guest editorials written by some of those people who were particularly influential in the building of the American Physiotherapy Association, the first of which follows below.

As we review with pride the accomplishments of the past twenty-five years, we look to the future as a significant period in our development which brings a challenge to further expansion and achievement.—LOUISE REINECKE

The American Physiotherapy Association's outstanding achievement is its continuous struggle to establish and maintain standards for the training of physical therapists. To this group must be given credit for the first efforts made toward the improvement of education for physical therapists. A short review of the influence of the American Physiotherapy Association in establishing the present-day standards of education should be gratifying to those who have been leaders in this struggle. The progress which has been made in a period of twenty years should be appreciated by the physical therapists of today who are benefiting from the earnest efforts of the pioneers of your profession.

A report of the annual convention of the American Physiotherapy Association, held in Chicago in 1924, was published in the September 1924 issue of the REVIEW. In that report it was noted that I deplored the shortage of trained workers and warned against employing persons trained only in the usage of the various types of mechanical equipment. I also suggested that your association set a standard of education for physical therapists and help to start schools for this training. The following year the Secretary of the Council of Medical Education and Hospitals of the American Medical Association requested from your association a list of acceptable schools. He was supplied with a list of four schools accepted as fulfilling the educational standards for membership in your association.

In October 1928 the REVIEW published the list of schools whose graduates were acceptable for membership in the American Physiotherapy Association. Your association shortly thereafter requested that the Council on Physical Therapy of the American Medical Association act as the final authority in the approval of schools of physical therapy. The Council voted favorably on this petition and adopted, with some changes, the educational requirements that you had already set up. These were published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, February 8, 1930. Because the Council on Physical Therapy did not have personnel to inspect schools, the Council on Medical Education and Hospitals of the American Medical Association agreed to assume this responsibility and since that time there has been close cooperation between these two organizations in all educational problems.

In 1926, in order to protect educational standards, Miss Gertrude Beard, President of the American Physiotherapy Association, stated before the American College of Physical Therapy:

"We need the protection of state registration, the same as physicians and nurses. We need help in going about the legislative procedures to obtain this registration, and we need the cooperation and help of your organization."

The American College of Physical Therapy announced, in December 1926, the opening of a Technicians' Bureau. "The purposes of this bureau will be to register qualified technicians in physical therapy in order to supply the needs of physicians anywhere in North America." This bureau did not meet the need for a registry and did not maintain high educational standards; therefore, its life was short.

In 1935 in consultation with the Council on Medical Education and Hospitals of the American Medical Association, the American Congress of Physical Therapy and the American Physiotherapy Association, the American Registry of Physical Therapy Technicians was established. This registry was suggested by your organization in 1926. It is successful today with over 3000 registrants because it has been insistent in maintaining high standards as originally recommended by your organization.

Another means your association has used to maintain high standards in postgraduate education is THE PHYSIOTHERAPY REVIEW. I have been proud to contribute abstracts of physical therapy literature to the REVIEW since 1928. Through its articles, book reviews and abstracts this journal has contributed greatly to physical therapy, and it is one of the outstanding publications of this field in the world.

For many years I have been associated with you on your advisory committee, and I want to congratulate this association on making the first efforts to improve educational standards for physical therapists even before the medical profession showed any interest in the subject. You also should be congratulated on your struggle to maintain these standards in spite of the indifference or opposition of the medical profession which existed at times. It is hoped you will continue this struggle because we need after this war, as after World War I, to maintain high standards for physical therapists. It should be remembered that rehabilitation is not a new art to be practiced by specialists in rehabilitation but is a subject to which well trained physical therapists have contributed and which can be successful only if well trained physical therapists are used as part of the program.

—JOHN S. COULTER, M.D.

Annual Convention 25th Anniversary Year

The annual 1946 convention of the American Physiotherapy Association will be held June 16-22 at Blue Ridge Assembly, Blue Ridge, N. C. A most interesting program is being planned. Details will appear in the March-April issue of the REVIEW. Mark the calendar and plan to be in the Blue Ridge Mountains of North Carolina for the convention of our Twenty-Fifth Anniversary year.

Change of Address for "The Physiotherapy Review"

The address of THE PHYSIOTHERAPY REVIEW has been changed from 720 North Michigan Avenue, Chicago 11, Illinois, to 4741 North Paulina Street, Chicago 40, Illinois. All matters pertaining to the REVIEW should be sent to this latter address.

Veterans' Administration— A New Bill

H. R. 4717, to provide a Bureau of Medicine and Surgery in the Veterans' Administration, was signed by President Truman on January 2, 1946. This takes the place of H. R. 415 described in the November-December 1945 issue of the REVIEW. Further details concerning this bill will appear in the next News Letter to our membership.

Veterans' Administration Appoints Doctor Magnuson

Dr. Paul B. Magnuson of Dundee, Ill., a widely known surgeon and orthopedic specialist, has been appointed by the Veterans' Administration to head a program of research and graduate training in veterans' hospitals throughout the country.

The new program is part of a project begun by General Bradley, Veterans' Administrator, to improve the medical treatment available to ex-service men and government institutions. Maj. Gen. Paul R. Hawley, acting surgeon general of the Veterans' Administration, has said that new opportunities in the fields of medicine, surgery and research must be developed in veterans' hospitals to attract top ranking men to the institutions.

Doctor Magnuson will lead in the formulation of training policies for medical personnel and also will be in charge of the establishment and operation of all schools or courses of instruction in professional subjects for veterans' physicians.

Veterans Administration to Assume Control of Prostheses*

At a recent news conference the following major points were developed by Major Gen. Paul R. Hawley, acting surgeon general of the Veterans Administration:

1. The Veterans Administration will take over on Jan. 1, 1946 all of the development and research work being conducted on prosthetic and sensory devices (artificial limbs, hearing aids, dentures and so on) by the Office of Scientific and Research Development, a wartime agency which is scheduled to go out of existence December 31. In addition, the Veterans Administration will assume on Jan. 1, 1946 the Army's experimental work in these fields in connection with the OSRD and the National Academy of Sciences.

2. This means that the Veterans Administration will become the central federal agency for all research and development work on prosthetic appliances, a step that has been advocated by some congressional and other sources, so that all government as well as outside agencies may benefit from the results of a unified program.

3. Arrangements are now being made with the Bureau of the Budget to transfer the existing research contracts, effective Jan. 1, 1946, to the Veterans Administration so that this work may be continued on an uninterrupted basis. It is estimated that the work will require $1,000,000 per year.

4. The original research and development work on artificial limbs and other prosthetic and sensory devices was initiated through a Special Committee on Prosthetic Devices headed by Dr. Paul E. Klopsteg. It was established by the National Research Council on March 20, 1945 to conduct an intensive campaign in this field, which resulted in many excellent results. In addition to the OSRD program, the Veterans Administration has been conducting limited experimental and development work at its hospital in the Bronx, New York.

5. It is emphasized, however, that the permanent research and development program is concerned only with the long-range future aspect of the problem. In other words, it seeks to develop the best and most modern appliances and does not include instruction as to their actual and immediate usage.

6. To meet this vital phase of the problem, the Veterans Administration has formulated plans for an immediate research and educational program to teach the disabled veteran to use artificial limbs or other prosthetic and sensory appliances properly as quickly as possible. Leading specialists in this field will be employed to supervise the activities. A formal announcement will be made as soon as key personnel have been selected to head the program.

*Reprinted from J.A.M.A., 129:14:956, Dec. 1, 1945

Miss Paula Blackman, formerly director of the New York University school of physical therapy, has been replaced in that position only because the course required the full time of a university staff member. Miss Blackman remains as supervisor of physical therapy at the Hospital for Joint Diseases, New York City, and as director of clinical practice there for New York University students.

Facilities of the Bacon Library

Your attention is called to the facilities of the Bacon Library of the American Hospital Association, 18 East Division Street, Chicago 10, Illinois. While the library is intended primarily to serve members of the Association, it is open to anyone who has a legitimate interest in hospitals. Books, pamphlets and articles clipped from magazines may be taken or sent out, the only cost being the postage necessary for the return of the literature.

All material is filed by subject headings, such as the various hospital departments and their subheadings. The material available particularly relates to the planning, equipping and administration of the various departments and their relation to each other. Heads of departments whose hospital is a member of the Association are especially encouraged to consult the library and to use its facilities.

National Health Act

A full analysis of this article appears in the December 1, 1945 issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. We suggest that it would be to your interest to read this entire analysis.

Public Law 113

Michael J. Shortley, Director of the Office of Vocational Rehabilitation, Washington, D. C., recently reported as follows regarding services available to amputees under Public Law 113:

"In previous testimony . . . I have outlined the rehabilitation process as well as the rehabilitation services available to all disabled persons

under Public Law 113. In addition to the provision of limbs and plastic surgery to make possible the proper fitting of these limbs, amputees need and receive the same extensive rehabilitation services furnished other types of disabled persons. These services customarily include vocational diagnosis and counseling, psychological testing and services, complete medical diagnosis including examination by specialists, medical treatment under certain conditions, educational and job training, job placement and follow-up after placement.

"Extension of services to the disabled under the Federal-State rehabilitation program after the passage of Public Law 113 has resulted in the elimination of many of the limitations of the previous act. Artificial limbs are now available to amputees through the State Rehabilitation Agencies, when such limbs are necessary to the individual's rehabilitation program. Financial restrictions have likewise been removed through the method of financing under Public Law 113.

"The availability of a medical consultant on the staff of each Rehabilitation Agency now permits individual attention to the problems of the amputee. Necessary medical care or surgery requisite to fitting artificial limbs is now available. Medical consultation is also available with respect to the suitability and appropriate fitting of a limb. Medical social work consultant service is available to the amputee in order that he may be better prepared to adjust himself to the wearing of an artificial limb.

"In the past provision for instructing amputees in the use of artificial limbs was inadequate. In some of the metropolitan areas, the State Rehabilitation Agencies would secure a limited amount of assistance from artificial limb manufacturers and others.

"As physical therapy is increasingly developed in this country adequate training in the use of artificial limbs will become more widespread. It is the function of our Physical Restoration Section to assist the State Rehabilitation Agencies to develop this area of the rehabilitation program.

"I would like to summarize by saying that (1) The number of amputations which occur annually among civilians is greater than the total number of amputations performed in all the military forces in World War II. It required a war to direct public attention to the needs of amputees.

"(2) There is need for combining the most efficient mechanisms and the most satisfactory materials into one limb. The Office of Vocational Rehabilitation is represented on the Committee on Prosthetic Devices established by the National Research Council at the request of the Office of the Surgeon General of the Army which is undertaking to study artificial limbs, with a view to improvement in their design and function.

"(3) Disabled persons with loss of one or more members have always constituted a high proportion of the disabled rehabilitated into employment. The Federal-State Rehabilitation program since the passage of the Vocational Rehabilitation Act Amendment of 1943 is able to better serve these persons through the removal of limitations heretofore present. It is our intention to continue serving the amputees in greater numbers, as our records indicate, and as intensively as other groups of disabled as previously outlined."

New Members

The following are newly accepted members of the American Physiotherapy Association:

Adams, Lt. Fae M., Lawson Gen. Hosp., Atlanta, Ga.
Barringer, Dorothy Jean, Box 401, Oliver Gen. Hosp., Augusta, Ga.
Bates, Myrtle M., Lawson Gen. Hosp., Atlanta, Ga.
Batliner, Mary L., 8307 Waring Ave., Los Angeles, Calif.
Beermann, Mrs. Catherine, 77 Wheeler Ave., Westwood, N. J.
Brennan, Frances A. (Ensign), U. S. Naval Hospital, Key West, Fla.
Buek, Beulah L., A.A.F. Station Hospital, MacDill Field, Tampa, Fla.
Cairns, Elinor, Percy Jones Gen. Hosp. Staff, Battle Creek, Mich.
Campbell, R. Elizabeth, 2679 California St., San Francisco, Calif.
Cohen, Geraldine, 100 Morningside Drive, New York, N. Y.
Corning, Ursula, 1107 Fifth Ave., New York 28, N. Y.
Coyner, Pauline, Salt Lake County Gen. Hosp., Salt Lake City, Utah.
Craven, Mrs. Dolores R., N. Y. State Reconstruction Home, West Haverstraw, N. Y.
Davis, Annette, 2024 Benedict Ave., Bronx 61, N. Y.
Dawe, Sidney M., Box 506, Shafter, Calif.
Dombois, Mrs. Irma Bartenieff, 147 W. 78th St., New York, N. Y.
Douglas, Mrs. Conda Elizabeth, 508—19th Ave., Nampa, Idaho.
Eastman, Jean, 87 Hamilton Place, New York 31, N. Y.
Friedel, Ruth P., 650 Victory Blvd., Staten Island, N. Y.
Greenberg, Lenore, 66 Poppy Lane, Berkeley 8, Calif.
Hamlyn, Alvera, 25th WAC Hospital Co., Percy Jones Gen. Hosp., Battle Creek, Mich.
Harris, Barbara, 3505 S.C.U. Fletcher Gen. Hosp., Cambridge, Ohio.
Hawley, Jean, Crile Gen. Hosp., Cleveland 9, Ohio.
Hayes, Jean E., Rancho Los Amigos, Ward "K", Hondo, Calif.
Ingle, Sarah McInnis, Salt Lake Gen. Hosp., Salt Lake City, Utah.
Johnson, Beatrice M., 533 Sixth St., Rochester, N. Y.
Jones, Althea M., Monmouth Memorial Hosp., Long Branch, N. J.
Kelm, Carol V., 808 S. Second St., Stillwater, Minn.

Kemper, Mrs. Angela M., Lawson Gen. Hosp., Atlanta, Ga.
Kennett, Ruth, 1316 Jaeger Drive, South Euclid 21, Ohio.
Laue, Marion, Naval Medical Center, Bethesda 14, Md.
Malcolm, Nadine, 802 Olive, Fresno 3, Calif.
Mensch, Gertrude L., Wm. Beaumont Gen. Hosp., El Paso, Tex.
Morrow, Shirley A., Brooke Gen. Hosp., Ft. Sam Houston, Tex.
Mundorf, Charles C., U. S. Naval Hosp., Mare Island, Calif.
Newman, Ronnie Kay, Hotel Delmonico, Park Ave. and 59th St., New York, N. Y.
Olmsted, Lois, 51 West 53rd St., New York, N. Y.
Osterloh, Marie, Borden Gen. Hosp., Chickasha, Okla.
Pallo, Marie D., Gardiner Gen. Hosp., Chicago, Ill.
Patterson, Nina H., ASF Regional Hosp. 104-B, Ft. Benning, Ga.
Pickett, Eugenia J., WAC Det., P.T. School, Lawson Gen. Hosp., Atlanta, Ga.
Pitman, Esther, Percy Jones Gen. Hosp., Battle Creek, Mich.
Rankin, Lois Virginia, A.S.F. Convalescent Hosp., Camp Upton, L. I., N. Y.
Sathre, Mrs. Carol B., 2442 Ingalls St., Denver 14, Colo.
Shumate, Ida Laura, U. S. Naval Special Hosp., Springfield, Mass.
Sister Mary Rosamunda, St. Mary's Hosp., Rochester, Minn.
Smith, Doris, O'Reilly Gen. Hosp., Springfield, Mo.
Smith, Mrs. Rose M. P., Rhoades Gen. Hosp., Utica, N. Y.
Sprinkle, Helen M., Fitzsimons Gen. Hosp., Denver 8, Colo.
Stille, Jane, 1437 Ocean Ave., Santa Monica, Calif.
Strayer, Florence A., 519 N. Shepppard, Richmond, Va.
Stroup, Mrs. Mabelle, Veterans Administration Facility, San Fernando, Calif.
Van Arsdale, Mrs. Betty, Carlson Road, Yuba City, Calif.
Van Der Stelt, Helen, Beverly Apts., C-2, Rochester, Minn.
Wilson, Mary Lou, 112 Walsh Road, Lundowne, Pa.
Witherspoon, Coralie O., Lawson Gen. Hosp., Atlanta, Ga.

Recent Graduates of Children's Hospital, Los Angeles, Calif.:

Dempsey, Mrs. Leslee S.
Grant, Patricia
Modesti, Mrs. Nettie L.
Page, Mrs. Ethel
Renand, (Mr.) Dale D.
Storer, Margaret
Zankich, Vincella J.

Recent Graduates of Fitzsimons General Hospital, Denver, Colo.:

Andrews, Mrs. Mary M.
Bibza, Margaret R.
Boger, Martha M.
Brown, Barbara
Buckmaster, Mary
Cameron, Janet L.
DeCotis, Santina
DuRette, Marguerite I.
Lane, Florence Mae
MacNamarra, Doris Mae
Russel, Elizabeth Leigh
Shockey, Savinah
Simmon, Elsie M.
Tyson, Jean Marie
Wood, Harriet L.

Recent Graduates of O'Reilly General Hospital, Springfield, Mo.:

Cole, Blanche
Garrett, Alice L.
Gates, Marjorie C.
Grigsby, Hazel
Jack, Ruth E.
Morse, Loreta B.
Nevue, Vivian E.
Poche, Wanda E.
Scott, Mary M.
Summy, Ruth E.
Torp, Mary Jane
Whitlock, Eulia J.
Wilson, Virginia M.
Wooster, Mildred E.

Recent Graduates of D. T. Watson School of Physical Therapy, Leetsdale, Pa.:

Gricco, Pearl
Lowe, Elizabeth Anne
Neumeier, Bertha
Turner, Mrs. Alice J.
Vescovi, Elena

Army Physical Therapy Exhibit

The Physical Therapy Branch of the United States Army Medical Department opened an exhibit on November 5, 1945 in the Traveller's Insurance Building, Hartford, Connecticut. This is the first time that the Physical Therapy Branch of the Medical Department has participated in an exhibit of this nature, which was prepared in cooperation with other branches of the Medical Department in support of the Treasury's Eighth Victory Loan Drive.

The public was officially welcomed to the Exhibit in opening ceremonies which were broadcast over radio station WTIC. Alderman John Hurley (representing Mayor Mortensen) welcomed city officials, physicians, heads of the local hospital, military personnel from the First Service Command and members of the War Finance Committee of Hartford.

The exhibit was designed to demonstrate the physical therapy procedures and technics now employed in the Army's vast program of rehabilitation. It is well known that for thousands of wounded soldiers still remaining in Army hospitals throughout the United States the war has *not* ended. The hundreds of interested visitors confirmed the fact that the American public has not lost interest in the future of the wounded serviceman.

The steps in the care of the wounded soldier were traced from the field operating unit, eventually through the physical therapy clinic of a general hospital, to the workshop of the occupational therapy department by a display including nearly two hundred photographs which depicted the many phases of medical care in an Army hospital.

The physical therapy exhibit was composed of three plinths on which treatment by short wave diathermy, infra-red therapy, and the luminous infra-red baker were demonstrated on pajama-clad mannequins. The action of the whirlpool bath, so effectively used in the treatment of war injuries, was illustrated by a Chase doll with leg immersed in the whirling water. A miniature therapeutic exercise gymnasium with stationary bicycle, shoulder wheel, pulleys, and rowing machine also was exhibited.

A promotional display at the Sage Allen Department Store, prominent retailer backing the exhibit, provided an unexpected and humorous development. A lady examining the equipment discovered an arm whirlpool bath in which she evinced unusual interest.

She watched the swirling water for several minutes, then turned to the physical therapist on duty and said:

"How much do these new washing machines cost? You don't really expect to sell those things, do you?"

Index to Current Literature

Anterior Poliomyelitis

Dorsolumbar Kyphosis due to Anterior Poliomyelitis. EDWARD P. SALEM. Bull. Hospital for Joint Diseases, April 1945.

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Exercising Device for Increasing Joint Motion. LOUIS B. NEWMAN. U. S. Naval Med. Bull., Sept. 1944.

Support of Fingers and Thumb in Radial Nerve Paralysis. Bull. U. S. Army Med. Dept., May 1945.

Arthritis and Rheumatism

Total Excision of the Patella for Arthritis of the Knee. H. HERMAN YOUNG and JOSEPH M. REGAN. Minnesota Med., Nov. 1945.

Physical Therapy in Rheumatoid Arthritis. B. I. COMROE. Arch. Phys. Med., Nov. 1945.

Palindromic Rheumatism. W. D. PAUL and T. L. CARR. Arch. Phys. Med., Nov. 1945.

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Response of Chronic Simple Glaucoma to Treatment with Cyclodiathermy Puncture. FREDERICK W. STOCKER. Arch. Ophthal., Sept. 1945.

Cyclodiathermy in Secondary Glaucoma. M. I. AUERBACH. Amer. Rev. Soviet Med., Oct. 1945.

Low-Voltage Galivanization in Sinusitis. E. KUPFER. J. Laryngol. and Otology, Feb. 1945.

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Injuries of the Hand. SUMNER L. KOCH. Quart. Bull., Northwestern Univ. Med. School, Winter 1945.

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Studies on Neuromuscular Dysfunction. IV: Neostigmine Therapy of Acute and Chronic Cervical Intramuscular Fibrositis. HERMAN KABAT and CHARLES W. JONES. Arch. Phys. Med., Nov. 1945.

Readjustment to Peace—The People's Responsibility. C. CHARLES BURLINGAME. Arch. Phys. Med., Nov. 1945.

Wilhelm Konrad Roentgen: An Anniversary. HOWARD A. CARTER and JOHN S. COULTER. Arch. Phys. Med., Nov. 1945.

A Design for Surgical Convalescence. ROBERT ELMAN and JOHN T. AKIN, JR. Annals of Surgery, Oct. 1945.

Acute Infectious Polyneuritis (Guillain-Barre Type). JOSEPH G. CHUSID and GILBERT H. MARQUARDT. Annals of Int. Med., Nov. 1945.

Plastic Surgery. I. D. KITCHIN. J. Chart. Soc. Physio., Nov. 1945.

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Nervous and Mental Diseases and Injuries

Electroconvulsive Therapy of Acute Hysteria. FRED FELDMAN, SAMUEL SUSSELMAN, BASILE LIPETZ and

EUGENE BARRERA. J. Nervous and Mental Dis., Nov. 1945.

Outcome in Dementia Praecox Under Electric Shock Therapy, as Related to Mode of Onset and to Number of Convulsions Induced. LOUIS LOWINGER and JAMES H. HUDDLESON. J. Nervous and Mental Dis., Sept. 1945.

Therapeutic Efficacy of Electroconvulsive Therapy. GEORGE H. ALEXANDER. J. Nervous and Mental Dis., Sept. 1945.

Modification of the Electroshock Convulsion by Sodium Pentothal and Curare. MATTHEW BRODY. J. Nervous and Mental Dis., Oct. 1945.

Some Psychological Aspects of Spasticity. JOHN D. MCKEE. Spastic Review, Dec. 1945.

Occupational Therapy

Occupational Therapy at an Army Amputation and Neurosurgical Center. ANTHONY C. REIGER. Occup. Therapy and Rehab., Oct. 1945.

Peripheral Nerve Injuries

Peripheral Nerve Injuries. R. GLEN SPURLING. J.A.M.A., Dec. 8, 1945.

Electrical Diagnosis of Peripheral Nerve Injury. J.A.M.A., Sept. 15, 1945.

Peripheral Vascular Diseases

Carbachol Iontophoresis in the Treatment of Thromboangiitis Obliterans. SINGLETON WARD. J. Chart. Soc. Physio., Dec. 1945.

Physical Therapy

The Teaching of Physical Medicine in a Medical School. HARRY D. BOUMAN and JOHN S. COULTER. Quarterly Bull., Northwestern Univ. Med. School, Winter 1945.

Physical Medicine in the Army Air Forces Convalescent Hospital. HOWARD A. RUSK and KARL E. VOLDENG. Arch. Phys. Med., Dec. 1945.

The Use of the Person Trained in Physical Education in Physical Medicine. Arch. Phys. Med., Dec. 1945.

Rehabilitation

Reconditioning of Military Personnel as Carried Out in the Army. S. U. MARIETTA. Diseases of the Chest, March-April 1945.

Socio-Economic Problems in the Rehabilitation of the Tuberculous. EDWARD HOCHHAUSER. Diseases of the Chest, July-Aug. 1945.

Work Therapy in an Army General Hospital. HERMAN L. RUDOLPH. Arch. Phys. Med., Dec. 1945.

The Road Toward Rehabilitation. HELEN J. ALMY. The Child, Nov. 1945.

The Place of Rehabilitation in an Orthopedic Scheme. M. FORRESTER-BROWN. J. Chart. Soc. Physio., Dec. 1945.

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Resuscitators. HENRY SCHWERMA and A. C. IVY. J.A.M.A., Dec. 29, 1945.

Ultraviolet Radiation

Ventilation in the Spread of Chickenpox and Measles Within School Rooms. MILDRED WEEKS WELLS. J.A.M.A., Sept. 15, 1945.

Ultraviolet Lamps for Disinfecting Purposes. W. W. COBLENTZ. J.A.M.A., Dec. 22, 1945.

Protective Skin Coatings for the Prevention of Sunburn. MATTHEW LUCKIESH, A. H. TAYLOR, H. N. COLE and TORALD SOLLMANN. J.A.M.A., Jan. 5, 1946.

ABSTRACTS

John S. Coulter, M.D.

Safety of Modern Alternating Positive and Negative Pressure Resuscitators

Henry Schwerma, Ph.D., and A. C. Ivy, Ph.D., M.D. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 129:18:1256, December 29, 1945.

There is no evidence in this study that artificial respiration of the suck and blow type (+ 14 mm. of mercury and — 9 mm. of mercury) caused lung damage.

In 5 anesthetized dogs given artificial respiration with the E and J Resuscitator for one hour in the presence of natural breathing no evidence of emphysema was found.

The rate of return of blood pressure to the control level after the administration of curare was studied when dogs were given artificial respiration by various mechanical methods for one to three hours. The E and J Resuscitator was used on 20 dogs, the General Electric intermittent positive pressure Pneumolator on 7, the B intermittent positive pressure device on 8 and the Drinker Respirator on 7. No difference was found.

Protective Skin Coatings for the Prevention of Sunburn

Matthew Luckiesh, D.Sc.; A. H. Taylor, H. N. Cole, M.D., and Torald Sollmann, M.D., Cleveland. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 130:1:1, January 5, 1946.

Summary

1. Most of the erythema resulting from exposure to natural sunlight and skylight is produced by ultraviolet energy shorter than wavelength 3,200.

2. The Army Air Forces desired an agent or agents as a prophylaxis of sunburn. This protective cream or ointment to be stowed in life rafts or military aircraft must have maximum protection per unit weight or volume. It must be stable to heat and cold, free from rancidity, lend itself to simple packing, be nontoxic and not wash off.

3. Experiments were carried out at the Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, to ascertain the safest, most prac-

ticable, most cohesive, nontoxic agent or agents to serve this purpose.

4. Dark red vet. petrolatum (Standard Oil Company of New Jersey) was found to be quite opaque to erythemal energy. It likewise served as a complete protection to the skin in an exposure equivalent to twenty hours of the strongest sunlight in Cleveland measured during a four year period. This product in itself is recommended for the protection of aviators marooned on life rafts or in the desert following airplane crashes. The compound is not irritating and adheres tenaciously to the skin.

5. Phenyl salicylate (salol) was also found to be an excellent protection from ultraviolet radiation when put up in a 10 per cent cream. Experiments have also shown it to be nontoxic. It is further felt that a 10 per cent phenyl salicylate incorporated in the dark red vet. petrolatum be also tried as a suitable agent for protection of marooned aviators.

"Dead Hand"—In Users of Vibrating Tools

E. D. Telford, F.R.C.S., Emeritus Professor of Surgery, University of Manchester, M. B. McCann, L.R.C.P.I., D. H. MacCormack, M.B., L.P.O.O.L. Medical Officers, Ford Motor Company. In THE LANCET, 2:7:359, September 22, 1945.

That the long-continued use of vibrating tools will lead to the onset of the Raynaud phenomenon has been known for many years.

These earlier cases developed after the use of pneumatic tools, and the cold exhaust air generally was regarded as the cause of the trouble. That this is not the case is shown by the onset of the Raynaud phenomenon following the modern practice of using high-speed electrically driven tools, in which there is no question of a cold exhaust.

Physical Medicine in the Royal Air Force—The Central Medical Establishment

Sir Morton Smart, K.C.V.O., D.S.O., M.D., and Basil Kiernander, M.B., B.S., M.R.C.P., D.M.R.E. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 8:5:130, September-October 1945.

The scope and sphere of the usefulness of the Physical Medicine Department expanded so rapidly that in June 1944 a large house was requisitioned, at which the work of the department is now carried on with an establishment including 10 masseuses and a radiographer in charge of the X-ray section. All the rooms are well appointed, airy and comfortable, with ample supply of hot and cold water on all floors, each of which is served by a passenger lift. Most types of physical treatment are available, such as exercises, massage, galvanism, graduated muscular contractions, Kromayer lamp, infra-red, ultraviolet, short wave diathermy, surgical diathermy and manipulation. Patients are referred by their unit medical officer to Squadron Leader Kiernander, who holds a daily clinic, and Sir Morton Smart sees selected cases on Thursdays (and any other days by special arrangements), while he carries out all manipulations requiring anesthetics at Air Ministry Unit, Hallam Street.

A chiropodist also is attached to the staff, working full time.

An important point in the organization is that each patient, after being examined by the medical officer in charge, is allocated to a masseuse, who as far as possible undertakes the treatment till the end result is reached, and in this way both the patient and masseuse have a personal interest which is of considerable psychological value.

Internal Derangements of the Knee: Diagnosis and Treatment

Major Bernard J. Mintz, Medical Corps, Army of the United States. In THE AMERICAN JOURNAL OF SURGERY, 70:2:196, November 1945.

Conclusions

1. In both initial and late cases of meniscus injury, surgery is indicated as soon as diagnosis is determined.

2. Cases with osteoarthritic changes, as evidenced by persistent symptoms and disability, are not suitable subjects for operation in military service.

3. Complete excision of the meniscus should be done in all cases. The method advocated for this purpose requires two incisions for a visual approach to both joint compartments.

4. Prognosis is generally good. Persistent symptoms postoperatively, which cannot be attributed to altered joint mechanics, knee strain or quadriceps weakness, are usually due to other co-existing pathological conditions, such as early arthritic changes (rheumatoid or osteoarthritic), chronic synovitis or chondritis.

5. Postoperative care includes early quadriceps exercises (after the third day), weight bearing and active exercises after the tenth day, and restriction of strenuous joint activity for about two months postoperatively.

Stockinet-Adhesive Chest Strapping

Bert C. Wiley, M.E., M.D., Director of Physical Medicine, Miami Valley Hospital, Dayton, Ohio. In ARCHIVES OF PHYSICAL MEDICINE, XXVI:12:764, Dec. 1945.

The disadvantages of the conventional methods of strapping chests with multiple overlapping strips of adhesive tape to decrease the amount of rib movement in the case of fractures, or to decrease pleural friction in the case of pleurisy, are largely avoided by use of the stockinet-adhesive strapping which is employed in the department of physical medicine of the Miami Valley Hospital.

The advantages of stockinet-adhesive strapping may be summarized as follows:

1. No adhesive material is in contact with the skin to give rise to contact dermatitis.

2. There is no danger of tearing off areas of epidermis when removing the binding.

3. Hair does not need to be shaved off the chest.

4. The strapping can be repeatedly adjusted either at the time of initial application or later.

5. It can be removed readily for the giving of diathermy or other treatment, disintegration of the adhesive material by heat thus being avoided, and it can then be reapplied.

6. It can be removed by the patient or a member of his family before the patient takes a bath, and it can then be reapplied. Therefore it lets the patient feel cleaner and retain a good skin condition.

7. It will not roll into a round cord on obese patients as ordinary muslin binders do.

8. It will not slip (expand) as readily as adhesive tape applied directly to the skin.

9. It immobilizes the thoracic cage as well as any flexible binder.

Summary

A combination stockinet-adhesive chest binder is described which prevents contact between the skin and the adhesive and can be repeatedly adjusted or removed and reapplied.

Treatment in Physical Medicine: Some Aspects

Mary E. Ormsby, M.R.C.S., L.R.C.P., Acting Physician in Charge of Physiotherapeutic Department, Royal Northern Hospital: Medical Officer in Charge Evening Clinic, Physical Treatment Centre, St. Marylebone and Western Dispensary, London. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 8:5:134, Sepembter-October 1945.

As an art to be acquired and practiced, progressive muscular relaxation has uses not easily found in other means; but it is not an easy thing to learn nor is the habit of its practice easy to acquire. Skilled teachers who can work in a suitable room with carefully chosen patients are required, and patients should report from time to time after they have finished their course. We are all weary of being told that we live in an age of speed, haste and confusion and that relaxation is wise, without an indication being given that there is a special course in which we can learn how to relax.

The nervous irritable patient, who is such a source of trouble to himself and those with whom he has to live, has usually an exaggerated sensitivity to discomfort and pain, and the tension in his mind makes him hold part of himself in a vice of his own spasm. Small wonder that very many individuals with chronic or recurrent fibrositis are of this type. Faulty posture of the head, which to so large an extent controls posture of the rest of the body, usually characterizes this group. The tense knitter syndrome is another instance of the vice—using the word not only in its figurative sense. Many patients come for treatment of stiff and painful left shoulder and neck, who have been using the left arm and hand to hold the knitting and have been wielding needles, with more motion, with the right. The spasm interferes with the circulation in the affected muscles, and once the shoulder is "reconditioned" by physical therapy, and the knitting time abandoned or drastically reduced, the trouble does not recur.

Does this seem a far cry from progressive muscular relaxation? I think it is a cry for its use as one of the means of combating tenseness and its ensuing troubles.

The advice to Boy Scouts to smile and whistle when annoyed has a sound basis in conditioned reflexes. Relaxation of body does bring with it some relaxation of mind, and the two are valuable restoratives. Undoubtedly, a mind well poised, and easily coming back to its center, as it were, when it has been temporarily pushed off, is the greatest good. Not all patients, so far, can have or profit by psychological treatment even when it is desirable. Half a loaf is better than no bread. Differential relaxation, when muscles not immediately in use can be partially relaxed (as in driving a car and doing certain kinds of work) is most useful.

Pain Following Injuries of Peripheral Nerves

James C. White, Captain (MC) U.S.N.R. In UNITED STATES NAVAL MEDICAL BULLETIN, 45:5:857, November 1945.

Summary and Conclusions

1. Painful neuromas, causalgia, and pain in phantom limbs occur most frequently in emotionally unstable persons with superimposed vasomotor disorders.

2. Pain is produced by partial or complete injuries of the nerve trunks, especially when there has been chronic sepsis and scar tissue formation around the point of nerve injury. Anoxia, abnormal vasomotor discharge, and other forms of sympathetic excitation of the hyperirritable sensory nerve endings appear to play a fundamental role in the production of pain.

3. In its most severe forms the pain, unless relieved at a relatively early date, will result in addiction to morphine and deterioration of the personality. Under these circumstances the pain pattern appears to become fixed in the cerebral cortex, so that no peripheral interruption of the sensory pathways can relieve it.

4. In treating difficult problems of this sort, the fact must always be borne in mind that any ineffectual and mutilating procedure, by adding another psychic trauma, must inevitably result in further suffering and loss of morale. Operations which fall in this category include repeated excision of neuromas, neurectomy, periarterial sympathectomy, reamputation at higher levels, and resection of the posterior spinal roots.

5. Operations which deserve a trial, and helpful points in their selection, are discussed.

The Physiology of Exercise in Relation to Physical Medicine

Ancel Keys, Ph.D., Minneapolis. In ARCHIVES OF PHYSICAL MEDICINE, 26:10:638, October 1945.

Exercise Prescription

In view of the foregoing it is not surprising that the prescription of exercise generally lacks careful definition and the exercise frequently is offered in homeopathic doses. Often enough the only time the prescription is really clear is when no exercise is allowed. The most common errors seem to be: (1) Lack of precise instruction. Calisthenics and other uncommon movements must be specified in exact detail to achieve even relatively the desired effect. Common exercises, such as walking, need specification as to items such as rate, cadence, footing, grade and arm swing. (2) Failure to observe the patient. Only by careful observation of the patient in exercise can the physician be certain just how much exercise the patient is getting and what it costs in effort. (3) Insufficient dosage of exercise. A few minutes of calisthenics may seem like a long time to the patient or nurse, but such exercise does not have much effect except perhaps in states of extreme debility. It is generally true that exercise which produces no fatigue has little benefit. (4) Failure to make the exercise enjoyable and diverting. A principal value of "health" resorts is that they usually have given thought to the pleasurable side of exercise. Dull and monotonous exercise is apt to fatigue the mind before it has much physiologic effect. (5) Failure to graduate the exercise in close accord with the patient's condition. Any athletic trainer knows that he must constantly adjust the program if he is to achieve good results. The problem of the patient is similar except that there is a wider range of condition to worry about.

Summary

Exercise is a fundamental but neglected part of physical medicine. Its importance emerges as soon as health is conceived of as something more than the absence of disease. The problems of fitness, of work performance and of restoration to full functional capacity after disease or injury are accentuated in war time. The tasks of increasing and applying knowledge in these fields are major challenges to physical medicine.

Passive exercise has definite general as well as local physiologic effects, but these are quantitatively trivial compared with those produced by active exercise.

"Athletic heart" and cardiac strain in exercise have been unduly emphasized to the detriment of effective prescription of exercise. A reduction in heart size with

a parallel increase in pulse rate is produced by several debilitating conditions. A moderate increase in heart size with a reduction in heart rate is a favorable adaptation.

Bed rest provokes profound deterioration in circulatory functions and unfavorable metabolic alternations. The ritual of bed care frequently increases the debilitation produced by disease or injury.

The estimation of fitness is basic to proper prescription of exercise and to the evaluation of therapy, but it is a difficult problem. Cardiovascular fitness is especially important, and tests in this area are useful.

The most common errors in prescription of exercise are (1) lack of precise instructions, (2) failure to observe the patient, (3) insufficient dosage of exercise, (4) inattention to the pleasurable possibilities of exercise and (5) inadequate adjustment of the exercise to the changing status of the patient.

Arthritis and Chronic Rheumatism

Douglas H. Collins, M.D., Emergency Medical Service Medical Superintendent and Pathologist, Wharncliffe Hospital, Sheffield; Rheumatism Research Fellow, University of Leeds. In THE PRACTITIONER, 155:5:299, November 1945.

Fibrositis

This rather inappropriate term for most conditions of nonarticular rheumatic disease is justified only by common usage. To help in planning treatment, four common etiological types of fibrosis may be borne in mind:

(1) Toxic: myalgia associated with, or immediately following, various systemic intoxications or infections.

(2) Mechanical: related to acute or repeated strains of ligaments and muscle insertions.

(3) Postural: muscle spasm resulting from injury or disease of joints or from developmental or occupational deformities.

(4) Psychogenic: Halliday (1937) drew attention to the high proportion of compensation insurance cases in which rheumatic complaints were due to psychogenic factors. Boland and Corr (1943) found psychogenic rheumatism to be a frequent cause of disability among rheumatic patients admitted to a U. S. service hospital. They state that the diagnosis is facilitated by recognizing such points as gross incongruity of symptoms with structural changes, persistence of disability, bizarre posture and associated hysterical manifestations. Ellman and his colleagues (1942) examined psychologically fifty mixed service and civilian patients diagnosed as fibrositis of over three months' standing. They found thirty-five to be suffering from common psychological disorders bearing on their complaint. Hysterical features were most common. They state that vague shifting pains suggest an underlying emotional disorder, whilst strictly localized pain points to the presence of organic changes.

Copeman and Ackerman (1944) offer an anatomical explanation of that further form of fibrositis associated with tender, palpable nodules. These nodules are apparently vascular, fatty structures liable to edema and congestion, in which state they may impede the smooth working of muscles and tendons in their fibrous envelopes or even herniate through foramina in the fascial investments.

Treatment.—Therapeutic infiltration of a local anesthetic is now an established procedure when pain is referred to accessible tender spots, but good results are not constantly achieved.

Success in treating fibrositis requires a careful consideration of all possible factors. Vigorous massage and physical therapy undoubtedly relieve many early and acute cases. In chronic cases, search must be made for underlying causes and treatment directed appropriately. At present, more importance attaches in America to psychogenic rheumatism than in this country. The war has vastly increased appreciation of psychosomatic medicine. It has also brought psychiatric training and experience to a great number of practitioners. There is hope that a nationally available specialist psychiatric service will grow after the war. This will do much to relieve both practitioners and patients of their wearisome burden of fibrositis.

A Critique of the Use of Rest in the Physical Therapy of Convalescence

Ralph Pemberton, M.D., Philadelphia. In ARCHIVES OF PHYSICAL MEDICINE, 26:10:620, October 1945.

Rest is usually prescribed to an excessive or inadequate extent. One needs but to go to homes for incurables to see exemplified the physiologic consequences of uncritically prescribed bed rest.

Conditioned Rest

1. Conditioned rest is not mere negation of activity; as such it could be harmful in many ways.

2. In rheumatoid or atrophic arthritis unconditioned rest may lead to ankylosis unless controlled.

3. Conditioned rest in most cases should include some form of physical therapy, such as postural exercise.

4. Properly conditioned rest in bed: (a) promotes passage of tissue fluids into the vascular channels; (b) promotes opening of peripheral capillaries because of warmth induced by the bed clothes; (c) promotes relief from static strains incident to maintenance of erect posture; (d) promotes relaxation of the nervous system; (e) allows ptosed organs to assume proper position and function; (f) reduces the metabolic load, and (g) permits settlement of metabolic deficiencies. It should be added that faulty posture may operate disadvantageously, even in bed, and when present needs attention and gentle measures of correction.

It is important to point out that physiologic rest may not be possible of inauguration or final achievement without pharmacologic assistance. The excited psyche and conditioned reflexes of the state under discussion will not return to normal quickly. Elevated nervous activities are usually in part defense mechanisms and are more easily aroused than allayed. Recourse must be had to the safest of the sedative drugs, such as the bromides and phenobarbital, the latter in doses of ¼ grain three or four times a day. Such small doses may accomplish nothing unless the subject is confined to bed. Larger doses defeat their purpose and establish a new dependency, which in turn may need control.

In this connection it may be well to mention that the use of "tonic" medication often has significant value in conjunction with gentle sedation in instituting a program of conditioned rest. Many clinicians feel that the administration of strychnine or nux vomica coincidentally with the sedatives is antagonistic pharmacologic practice. This is not the case, however, provided the dose of each is small. Fatigued organs or tissues may not be able to initiate as soon as desirable the processes of repair and normal function, and there is no doubt that the use of small doses of nux vomica, such as 3 minims three times a day before meals, may greatly aid in restoring balance. The prime consideration underlying the gentle medication discussed is complete rest of the patient as a whole. Without physical and mental rest such supplementary measures are futile.

Effect of Ultraviolet Radiation on Physical Fitness

Robert M. Allen, A.B. and Thomas K. Cureton, Ph.D., Urbana, Ill. In ARCHIVES OF PHYSICAL MEDICINE, 26:10:644, October 1945.

Conclusions

1. The ultraviolet light produced a 19.2 per cent standard score gain in the Schneider index for the experimental group, as compared with 1.5 per cent gain for the control group, which took the same physical training but did not take the irradiation. The gain for the experimental group meets the test of significance for a small sample, whereas the gain for the control group does not meet this test.

2. The ultraviolet light produced a 15.4 per cent standard score gain in the Illinois five item muscular endurance test for the experimental group, as compared with an 11.8 per cent gain for the control group. The gains meet the significant test for small samples.

3. An analysis of the significance of the difference between the means of the initial and final tests in each item shows that there are shifts of near significance in (1) pulse rate change, lying to standing; (2) pulse rate after exercise; (3) change in pulse rate, standing to postexercise, and (4) time for pulse rate to recuperate to standing pulse rate after the standard exercise. In the pulse rate change the differences were more significant for the experimental group and were all in the direction which suggests improved condition due to the ultraviolet irradiation.

4. The differences reach near significance in systolic blood pressure, lying and standing, where the changes in the means show a trend toward lowered systolic blood pressure due to exercise and also to the irradiation. Such changes need to be explored more fully with older subjects with relatively high blood pressure.

5. The experimental group exposed to the ultraviolet light contracted only half as many colds as the control group, which did not take the irradiation.

6. The experimental group showed greater interest in class work, attended more regularly and unanimously voted to continue the irradiation if permitted to do so.

7. The experiment should be continued and repeated with another group in a similar manner for an independent check.

The Physical Basis of Radiant Heat Therapy

David S. Evans and K. Mendelssohn. In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 38:10:586, August 1945.

In clinical usage the term "radiant heat" usually refers to radiation in the red end of the visible spectrum (0.65 u — 0.73 u) together with the invisible infra-red rays (0.73 u — 10 u). As a physical phenomenon infra-red radiation is distinguished from X-rays, ultraviolet rays and visible light only by its greater wavelength. All these radiations are electromagnetic waves and represent a flow of energy emanating from the radiation source. The intensity of such radiation is determined by the quantity of heat developed in a body (known as a black body) which absorbs all the radiation falling on it.

However, although these various types of radiation can all be put into the same class of physical phenomena, their physiological effects, and hence their clinical applications, are widely different. For example, a physiological reaction, such as the production of vitamin D, which can be brought about by irradiation with feeble ultraviolet radiation cannot be effected at all by infra-red rays, even with intensities a thousand times as great. Many similar examples, illustrating the great variety of effects which are produced by different kinds of radiation, could be given, but they can all be reduced to a fairly simple scheme by considering the physical nature of the phenomena.

The difference in action between short-and long-wave radiation can readily be understood by reference to the quantum theory, which states that radiant energy is not to be regarded as a continuous stream, but is made up of "atoms" (quanta) of radiation, each of energy $e = hv$ where h is a constant (6.6×10^{-27} erg seconds) and v is the frequency of the radiation ($v = \frac{C}{\lambda}$).

This shows that quanta are not all of the same energy, but those of shorter wavelength (higher frequency) are bigger than those in long-wave radiation. Since the constant h is of very small size, the discontinuance nature of radiation is not apparent to our gross senses, but this property becomes of primary importance when the effect of radiation on atoms and molecules, including those of living tissues, has to be considered. In general, radiant energy is taken up by agglomerations of molecules in the form of an increased vibration of these molecules; that is to say, there is an increase in their temperature. However, if quanta of sufficient energy, depending on the particular species of molecule, are supplied, they may be able to effect a structural change in the molecule itself, that is, the radiation will produce a chemical change. It now becomes clear why a few quanta of ultraviolet radiation (whose energy is large since the radiation is of short wavelength) can produce an effect which can never be produced by even an enormous number of the smaller infra-red quanta, the reason being that the latter contains no single quantum big enough to effect this particular chemical change in the molecule.

If an incandescent source is to emit its maximum radiation in the ultraviolet it must be very hot—10,000 degrees absolute or more—and a relatively small source will emit a very large amount of energy. The cooler radiation sources, emitting energy chiefly in the infra-red, do not radiate much energy per square centimetre, and a source radiating mainly in the far infra-red (say 7 to 8 u) must have a considerable area if it is to emit an appreciable amount of energy. This is an important consideration for the therapist. A point source which would give a beam of radiation cannot be used since its output would be far too small, and extended radiation sources will have to be employed.

Even when there is no artificial source of radiation a patient is continually exposed to the radiation from his surroundings. For example, an undressed patient standing in a room at 20 C. receives from all directions the radiation appropriate to this temperature, but his skin, which is at, say 30 C., will not emit more radiation than it receives. Clearly what matters for clinical application is not the absolute amount of energy received, but the excess over that which the patient will normally receive from his surroundings; in addition, when considering the amount of radiation received by a portion of the patient's skin, we must take into account all the radiation emanating from within a hemisphere described about the skin element under consideration. If, as is often the case, this hemisphere contains bodies (e.g. lamps, hot metal shields, the walls of the room) at various temperatures and at various distances, the radiation from which arrives at various angles on the skin,

all these factors must be taken into account. It is clear that an estimation of the actual clinical dose from a consideration of the effects of the various energy sources involved may in many cases be quite impossible owing to the mathematical difficulties involved. The quantity on which the clinician should base his treatment is the flow of radiation, coming from all directions which would pass through a unit surface in the place of the patient's skin, and he should determine the amount of this energy received by direct measurement with a suitable instrument and not attempt to deduce it from such data as the power of his treatment lamp.

As an example of the various physical factors which play a part in producing the total energy flow received by the patient we take an infra-red source in common use—the radiant heat cradle. This has been discussed in detail elsewhere (Evans and Mendelssohn, 1944) and we therefore confine ourselves to the main features. An element of the skin of a patient beneath the cradle receives radiation from three different types of source: (1) the filaments of the lamps; (2) the glass envelopes of the bulbs; and (3) the metal background of the cradle.

Sources (1) and (2) radiate at full strength within about a minute of switching on the cradle, but source (3) only reaches its power after more than an hour, when the metal background has reached equilibrium. Although it radiates from each square centimetre of its surface only about one-thousandth of the energy emitted by one square centimetre of lamp filament, the metal background is so extensive that it occupies a considerable part of the radiating hemisphere, and we must not, as has sometimes been done, neglect its contribution to the flux received by the patient. In fact, it has been shown, both by computation, and by direct measurement, that a square centimetre of skin in the centre of the cradle will receive about 0.5 pyron from sources (1) and (2) and about 1 pyron (all in long-wave infra-red) from source (3). In other words, a patient under the cradle will receive three times as much radiation after an hour as he did at the beginning of the treatment. Thus, if the initial conditions under the cradle had been taken as those specifying the treatment, it is clear that, after some time, the patient (or a patient put under a similar cradle which had previously been warmed up) would have received an overdose of 200 per cent. The therapist should, therefore, keep this time factor in mind, and should check the radiation flux administered to the patient in the course of treatment if there is a danger of parts of the treatment source warming up gradually.

Summary

Infra-red radiation has no specific action on the tissues; its therapeutic value is due to the fact that it supplies them with energy in the form of heat. The determination of the total radiation flux reaching the patient, therefore, should be the first consideration.

An analysis of the physical factors involved shows that infra-red sources, particularly those emitting long-wave radiation, have to be of considerable area, which, in many cases, makes the technic of beam therapy inapplicable. This, together with the problem presented by secondary radiation, makes computation of dosage difficult, and treatment should, therefore, be based on the measurement of radiation flux incident on the patient's skin. A suitable instrument for clinical use has been described.

The effect of interposing various materials in reducing the incident radiation has been investigated, and it has been found that shorter wavelengths have, in general, a slightly higher penetrating power.

The effect of heat conduction through the air, incidental to radiant heat treatment, on the total heat supplied to the patient, has been discussed, and determined in one particular case.

A rough survey of the physical factors governing heat removal from the tissues shows that treatment by infra-red can never remain purely local.

Peripheral Neuritis: Clinical and Physiological Observations on a Series of Twenty Cases of Unknown Etiology

Major Abner M. Harvey, Medical Corps, Army of the United States; Stephen W. Kuffler, Research Fellow, Kanematsu Memorial Institute of Pathology, Sydney, Australia, and Captain John B. Tredway, Medical Corps, Army of the United States. In BULLETIN OF THE JOHNS HOPKINS HOSPITAL, 77:2:101, August 1945.

Summary

1. Twenty cases of peripheral neuritis have been observed in which all of the patients had been on tropical duty and in eight of which the onset was related to an attack of malarial fever. The common peroneal nerve was involved in sixteen, the axillary nerve in three, and the radial nerve in one.

2. Electromyograms were made in response to maximal stimulation of the motor nerve in six cases with involvement of the peroneal nerve.

a. The loss of function indicated by the reduced voltage of the muscle action potential is a result of lesions of the nerve fibers only while neuromuscular transmission and muscle conduction is normal.

b. The recovery curve was followed in several cases by recording the action potentials at frequent intervals.

c. Atabrine and quinine had no influence on the degree or rapidity of the recovery in these patients.

3. In all cases with peroneal nerve paralysis the prognosis was good. Treatment consisted of proper support of the involved muscles, graded exercises under supervision of trained physical therapists, and a balanced diet supplemented by vitamins of the B complex.

Management of Nerve Injuries in the Late Stages

Frank Turnbull, M.D., Vancouver. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 53:5:440, November 1945.

We are indebted to the Russians for stressing the concept of rehabilitation of the limb as a whole in peripheral nerve injury. A recent article by Luria seems to explain why the Russians can be so enthusiastic about recovery, even after freak operations that include the use of alcohol-fixed cadaver grafts. It is apparent from a study of this article that they put little emphasis on recovery of function in the nerve that has been divided. They stress a type of exercise and mechanical training that will teach the patient how to overcome his handicap. Trick movements are purposely developed and encouraged. A man with a rigid claw hand is provided with tools which have special handles that can be firmly held in this type of hand. Then with the aid of these handles on his tools the man finds that he can keep up with his fellow workmen who have two normal hands. For patients with wrist drops, tools such as hammers are provided with long handles that tuck under the upper arm and provide stability.

Rehabilitation

Harold Balme, O.B.E., M.D., F.R.C.S., D.P.H., Medical Officer in Charge of Rehabilitation, Minstry of Health. In THE PRACTITIONER, 155:5:289, November 1945.

Breathing and abdominal exercises. The application of physical methods to the restoration of vital capacity after serious affections of the chest has been carefully studied at Brompton Hospital and other chest centers, and a successful technic evolved. Patients who are to undergo serious thoracic operations—lobectomy, pneumonectory, thoracoplasty—go through a special course of breathing exercises before operation, which are repeated throughout the whole postoperative stage, and similar methods are employed in the treatment of cases of pneumonia, empyema, emphysema and other pulmonary conditions associated with respiratory defects or lack of chest expansion. Special courses of exercises have been adapted for use in the treatment of bronchial asthma and of bronchiectasis. The applicability of methods of rehabilitation to cardiac disorders has been the subject of a special memorandum, issued by the Cardiac Society in 1944, in which attention was drawn to the type of patient likely to benefit by active methods of exercise combined with appropriate occupation.

Experience at Service and E.M.S. hospitals during the present war has clearly proved that the incidence of postoperative chest complications and of recurrent hernia has been largely reduced by the adoption of a carefully planned course of breathing and abdominal exercises, both before and after operation, and Shorter (1944) has described the methods of rehabilitation which have been carried out with success in various forms of abdominal surgery. It is claimed that the risk of thrombosis and of visceral prolapse is considerably reduced by the adoption of such measures, and a similar claim is made for the routine use of abdominal exercises after childbirth. There is reason to suppose that gastric and intestinal disorders, involving long periods of rest in bed, would also react favorably to a well-planned program of rehabilitation exercises and occupational therapy, and there is room for considerable research and experiment in this field.

Peripheral Nerve Injuries in European Theater of Operations: Management With Special Reference to Early Nerve Surgery

Colonel R. Glen Spurling, Senior Consultant in Neurosugery, European Theater of Operations, Medical Corps, Army of the U. S. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 129:15:1014, December 8, 1945.

The excellent results obtained by the peripheral nerve injury program in the European Theater of Operations were at least in part due to the expansion of the Physical Therapy Service proportionately with the neurosurgical load. The Chief Surgeon's Office cooperated fully in this respect, by the authorization of additional space and equipment, the assignment of available Army personnel in excess of Table of Organization specifications and, whenever possible, the employment of trained British civilian personnel. As a result, the Physical Therapy Service became one of the most important departments of every neurosurgical center.

Recent experiments and clinical studies have indicated that daily galvanic stimulation of denervated muscles will prevent atrophy and retard fibrosis, and this measure was therefore employed as a routine in all cases, beginning with fifteen brisk contractions daily and progressing gradually to thirty contractions. When casts were used for postoperative immobilization, windows were cut over the bellies of the paralyzed muscle groups and galvanic stimulation was begun the day after operation. Other measures included massage, active and passive motion and the use of dry and moist heat as indicated. Particularly careful attention was given to the active and passive motion of small joints. Fixation by splints was kept at a minimum, detailed instruction of the patients in respect to the care of their own joints being considered more important than mechanical methods of fixation.

A routine adopted for the management of peripheral nerve injuries in the European Theater of Operations was based on fundamental surgical principles modified, as circumstances required, to bring them into accord with the exigencies of the military situation.

The essential features of the program were (1) debridement and delayed primary closure of the wound, with approximation or anchoring of the severed nerve ends if they were visualized at the first operation; (2) suture of the divided nerve within twenty-one to ninety days after wounding, but preferably between twenty-one and twenty-eight days, when the least technical difficulties and the best end results can be expected; (3) a judicious use of immobilization during transportation and after neurorrhaphy, preferably by removable splints; (4) preoperative and postoperative physical therapy.

Physical Therapy in Rheumatoid Arthritis

B. I. Comroe, M.D., Philadelphia. In ARCHIVES OF PHYSICAL MEDICINE, 26:11:682, November 1945.

Hydrotherapy is valuable in the treatment of the arthritic patient, but it is contraindicated in acute rheumatoid arthritis because of the probability of fatigue and exacerbation.

For patients with rheumatoid arthritis of multiple joints, one may employ hot baths at a temperature of 100 to 102 F. for five to twenty minutes with the patient moving all his affected joints while submerged in the bath.

The hot bath is useful in subacute or chronic generalized rheumatoid arthritis, although some arthritic patients, particularly those who are emaciated and weakened, do not tolerate exposure to heat and are easily exhausted from prolonged hot baths.

Fluids must be given freely after the bath (or during the bath if marked sweating occurs). If there is excessive perspiration, 2 to 6 tablets of sodium chloride (1 Gm. each) may be given. All patients should rest in bed for at least an hour after the bath.

Whirlpool baths are useful in treating chronic rheumatoid conditions of the upper and lower extremities.

Hot foot or arm baths may be given by using a large bucket or specially constructed container. The water should be 100 F. at first, the temperature being gradually raised to 105, 110, or 115 F. if this heat is tolerated. The affected part should be kept in the bath for twenty to forty minutes.

In subacute or chronic cases, if it is impossible to move the patient to a tub, a hot full wet pack may be of value.

Hot paraffin applications are an effective method of applying heat to individual joints. If the hands are involved, eight to ten layers of paraffin may be applied and allowed to remain in place for thirty to sixty minutes with the part wrapped in a warm towel or blanket. The paraffin is then peeled off and replaced in the

inner container of the double boiler to be used at the next application.

Systematically performed baking combined with massage may work wonders in the treatment of painful knees, shoulders and other joints. Unfortunately, too many persons look on this as an office or hospital procedure, although an effective baker may be built cheaply for the home.

Simple inexpensive heat lamps have been devised for local application of dry heat.

General heliotherapy may be of tonic value in chronic cases.

Infra-red rays are also useful in providing temporary relief of swollen joints.

Diathermy is the most efficient method of heating deeper tissues and is particularly valuable in treating the spine and large joints. It may be indicated for contusions, muscular strains, sprains, tenosynovitis, chronic forms of arthritis, myositis and fibrositis. In some cases of acute bursitis, pain is relieved by short wave diathermy, while in others, exacerbation results (and diathermy must be discontinued).

Most authorities concede that the effects produced by diathermy are due solely to the generation of heat and not any specific biologic or bactericidal action. Diathermy is contraindicated in most cases in which there are acutely inflamed joints. The average effective duration of a diathermy treatment in chronic cases is approximately twenty to thirty minutes.

Re-Innervation of Denervated Muscle Fibers by Adjacent Functioning Motor Units

A. Van Harreveld. From the William K. Kerckhoff Laboratories of the Biological Sciences, California Institute of Technology, Pasadena. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 144:4:493, September 1, 1945.

Summary

1. A severe paresis is produced in the m. quadriceps and usually also in the m. sartorius of the rabbit by pulling the 6th lumbar spinal nerve out of the spinal cord. The small contingent of motor fibers from L 5 forms the sole remaining motor innervation of these muscles.

2. Recording the forces developed by the right and left mm. sartorius and quadriceps during the stimulation of the fibers from L 5, a few months after the removal of the 6th lumbar spinal nerve, it was found that the force produced on the operated side was considerably larger than on the control side.

3. This increase in muscle force starts about two weeks after the removal of L 6, it is considerable during the first few months and has probably not quite ceased after 6 months.

4. No serious or obvious degeneration was usually found in the m. sartorius two months after the removal of L 6, even in the instances in which this muscle was innervated originally only to a small extent by L 5 (as indicated by the small forces developed on the control side during stimulation of L 5).

5. The average surface of the muscle fiber cross section in the m. sartorius on the operated side was found to be larger than on the control side.

6. It was concluded that the increase in force observed a few months after the partial denervation of the sartorius and quadriceps muscles is due mainly to an adoption by the motor units belonging to the 5th lumbar segment, of muscle fibers innervated originally by L 6. This adoption would be made possible by an increase of the branching of the end ramification of the motor fibers of L 5. It is possible that the increase in thickness of the muscle fibers is an additional factor in the increase of muscle forces of the partially denervated muscles.

A Simple Method of Cure for Flat Foot

T. Stacey Wilson, M.D., F.R.C.P., Senior Consulting Physician to the Birmingham United Hospital. In CLINICAL JOURNAL, 74:6:233, November-December 1945.

While a medical student at Edinburgh some 65 years ago I began to suffer from flat foot as the result of an unusual amount of standing when my work in the hospital wards began. The advice of one of our surgeons was sought, and I was told that by walking and standing on my toes as much as possible and by throwing more weight on to the ball of the little toe than on to the ball of the great toe I would soon be well. This was done and the pain in my foot soon ceased, and from that day to this I have had no more trouble from flat foot.

In cases where the muscles are too weak to admit of the elevation of the arch of the feet while standing, it may be necessary to give exercises which will strengthen the tibialis anticus and the peroneus longus muscles, upon which the support of the arch is dependent. In order to demonstrate the necessary movement the patient sits on a table with the knees wide apart and then moves the foot up and down in an inverted position so that as much of the sole as possible is brought into view. The peroneus longus and to a less extent the tibialis anticus are responsible for this movement. As soon as the patient understands what is necessary a weight is hung on each foot which can be lifted without undue exertion some 15 to 20 times in succession. The simplest way to provide the necessary weight is to turn a duster into a bag in the usual way, by knotting the corners together and then putting into it the requisite number of large pebbles, or bits of brick. Every few days—as the muscles regain their vigor—a few more pebbles or bits of brick must be put into the bags. The repetition of these exercises many times a day together with the effort to walk and stand on the toes rather than on the heels will soon cure a case of flat foot.

Disuse Atrophy of Skeletal Muscle

Capt. W. B. Ayre, R.C.A.M.C. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 53:4:355, October 1945.

Summary

1. A case of permanent disuse atrophy in skeletal muscle the result of a fracture sustained ten years ago is presented.

2. The development of the concept of disuse atrophy as related to skeletal muscle is outlined.

3. The possible etiological factors are discussed. The importance of inability to actually shorten an immobilized muscle with contraction is pointed out.

4. The pathological changes are described; and possible causes for the occurrence of permanent changes with atrophy are discussed.

5. It is noted that the findings in some recent investigations relating to disuse atrophy in skeletal muscle are in some regards at variance with our usually accepted concept of disuse atrophy; and it is suggested that this concept may eventually be changed. Further study is necessary to give us more insight into the fundamental nature of this process as it involves skeletal muscle.

Palindromic Rheumatism

W. D. Paul, M.D., and T. L. Carr, M.D., Iowa City. In ARCHIVES OF PHYSICAL MEDICINE, 26:11:690, November 1945.

Recently Hench and Rosenberg described a new type of arthritis which they called "palindromic rheumatism." Only 39 cases have been reported to date. It is possible that this form of joint disease may occur more often than the literature suggests. We feel that a review of the cases so far reported may stimulate the physician to recognize this syndrome.

Summary and Conclusions

In none of the cases so far reported, including ours, were there any permanent joint changes that could be regarded as the result of the arthritic attacks. None of the patients had any elevation of the sedimentation rate or changes in the leukocyte count, and all were afebrile during and between attacks. The sudden appearance and disappearance of symptoms would suggest an allergic mechanism, but, thus far, this has not been proved. None of the patients who were observed over a considerable period have shown any evidence of endocarditis or have had any cardiac disturbances suggestive of rheumatic fever.

In the case reported by Paul and Logan, it was felt that the attacks of rheumatism were related to the psychic upsets. The patient was extremely nervous and was sure that nervousness would usually precipitate an attack. In 3 of the more recently reported cases the patient was of neurotic temperament or, at least, maladjusted to his environment. These circumstances suggest that psychosomatic factors may be involved in the production of the lesions of palindromic rheumatism. Up to the present time only 39 cases have been reported, and to this series we have added another.

Section of Physical Medicine: Physical Methods in the Management of Septic Conditions

President L. Danyers Bailey, C.B. (March 15, 1945). In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 38:10:578, August 1945.

Dr. P. Bauwens: From the point of view of physical treatment and also for the sake of convenience, a septic condition can be considered to pass through four arbitrary phases. (1) The acute stage, (2) resolution, (3) repair, (4) restoration of function (or rehabilitation). A latent stage preceding the acute stage might be added.

The routine treatment may be outlined as follows:

1st Stage (Acute)

(a) Rest, by extensive immobilization—e.g. Elastoplast to skin after suitable preparation. Plaster of Paris slat.

(b) Local pyrexia by means of low intensity U.H.F. (ultra high frequency).

(c) Movement—active if possible.

(d) Improvement of general condition by esophylactic doses of U.V.R. (ultraviolet radiation) (E_1 reaction, in sections).

2nd Stage (Resolution)

Slough, if any, separates. Acute symptoms regress. Danger of spread is decreased.

(a) Rest by immobilization, restricted to affected part and immediate vicinity.

(b) Local pyrexia.

(c) Movement—active if possible.

3rd Stage (Repair)

Slough and necrotic tissues have been expelled. Granulation starts.

(a) U.V.R. 4th degree doses to the raw areas once or twice a week, to bring about production of repair hormones (Nutini and Loofbourow).

(b) Packing and dressing with cod-liver oil. Oxidizing properties of C.L.O., due to unsaturated nature of oil.)

(c) Discard of rigid splinting, provided movement does not interfere with proliferation. Movement may be restricted by other less drastic methods.

(d) Active movements.

4th Stage (Restoration of Function)

In most cases the earlier part of this stage overlaps the latter part of the preceding stage, but appropriate treatment is started as soon as permissible. The methods employed in the 3rd stage may therefore be continued.

(a) Heat in suitable form, if indicated, to increase local temperature and produce hyperemia. (U.H.F., radiant heat, wax baths.)

(b) Exercises, occupational therapy, to promote movement.

The routine plan just outlined may be supplemented by other physical methods when indicated, and modified to suit the existing circumstances. For instance:

Edema, which constitutes a great hindrance to repair processes and also to mobility, can be controlled by means of massage, elevation of the limb, faradism under pressure, firm bandaging. (Crepe bandages, elastic webbing, elastoplast or semiplast.)

Adhesions—contracted scar tissue—keloid and persistent induration can be attenuated by means of iodine ionization in superficial conditions, or X-ray therapy when deeper structures are involved.

On "Acroparasthesia" and So-Called "Neuritis" of the Hands and Arms in Women: Their probable Relation to Brachial Plexus Pressure by Normal First Ribs

F. M. R. Walshe, M.D., D.Sc., F.R.C.P. In BRITISH MEDICAL JOURNAL, No. 4426, 597, November 3, 1945.

During the past four years an unusual number of cases have been seen in which the presenting symptoms have been numbness, tingling, and "uselessness" of the hands and fingers in women, often associated with severe pain and variable degree of disability.

Treatment

If, as has been postulated, we are dealing with a mechanically produced "neuritis" of components of the brachial plexus, sometimes with an associated minimal interference with the blood supply to the upper limb, it might be expected that rest—either rest in bed or the simple cessation of manual work—would produce appreciable relief and final disappearance of symtoms. That this does in fact occur is the submission of this paper. It is further submitted that rest is the only effective treatment. The majority of the numerous patients who have come under my own observation have, as already stated, been given prolonged and sometimes heavy dosage with synthetic vitamin B_1, as well as various forms of physical therapy. When these procedures have not been accompanied by rest they have, in my experience, proved futile, and this also is what might be anticipated if the view as to etiology taken here is the correct one.

In the most severe cases, therefore, an initial period of a week in bed, propped up during the day, with the arms in slings and taken out only for feeding and other necessary purposes, is the most rapidly effective way of relief from pain; thereafter a longer period of absten-

tion from heavy housework, and the supporting of the arms in slings whenever possible while the patient is standing or walking. During this second period massage to the shoulder girdles and general tonic treatment tend to prevent recurrence. Analgesics also have their uses in some cases as an adjuvant.

Chronic Fatigue

Sir Adolphe Abrahams, O.B.E., M.D. Camb., F.R.C.P. Physician to the Westminster Hospital; Consulting Physician to L.C.C. Hospitals. In THE LANCET, 2:14: 6371, October 6, 1945.

Among the presenting symptoms for which we are most frequently consulted, a complaint of chronic fatigue is a strong competitor for pride of place. Equivalents such as weakness, tiredness, weariness, exhaustion, lassitude, or lack of energy may each possess some essential distinction, but all are on the whole regarded as denoting the same sort of sensation with resentment at the inability to accomplish as much as others apparently do or as the sufferer believes he is entitled to expect.

The manual worker seldom seeks advice for such a symptom, and if he does we are justified in suspecting some responsible serious pathological state, although, on the whole, the sufferer from organic disease rarely mentions fatigue except incidentally. Traditionally, we associate asthenia with certain grave diseases or illnesses —myasthenia gravis, Addison's disease, malignant disease, diabetes, tuberculosis, profound anemia, for example. Myxedema and the debility following certain infections, especially influenza, may be included. But the majority of our patients who complain of chronic fatigue are deficient in physical signs or in the revelation of abnormalities by accessory aids to diagnosis. They are annoyed with us because we find no removable cause by way of explanation; we are disappointed because we have nothing specific to treat. We agree that in present day phraseology the pyschosomatic approach is extending into medical education; but the lay belief that there is something pathological that should be removed, or that we ought to provide an essential energizer or substitute for some deficiency, receives some sympathy from the materially minded practitioner whose education has been on older conventional lines. Temporary relief after operations is not surprising, whether due to the stimulation by hope and expectation or to the rest imposed after such procedures.

A Study of Spasticity and Paralysis

Philip F. Wagley, Department of Anatomy, Johns Hopkins University. In BULLETIN OF THE JOHNS HOPKINS HOSPITAL, 77:3:218, September 1945.

There are two elements in paralysis of cortical origin: (1) loss of control of certain movements and (2) alteration in muscle tone. In cases of hemiplegia, these two qualities are present in various degrees. When the site of the lesion is capsular or cortical, histological sections of the spinal cord, if they reveal damage, show changes in the area commonly assigned to the lateral corticospinal (pyramidal) tract. The residual alternation in muscle tone in such cases is usually hypertonic and is frequently associated with phenomena that are characteristic of spasticity. It was concluded, therefore, that these physiological facets resulted from the corticospinal tract damage. Although more critical analysis of clinical, pathological, and experimental studies has revealed the error in this concept, the location of the spinal cord fibers, the interruption of which results in spasticity, has not been ascertained. It is the purpose of this study to demonstrate that spasticity and paralysis are two physiological states having separable anatomical bases in the spinal cord. In so doing consideration has been given in detail of the effects of pyramidal and various spinal cord lesions on skeletal muscle. Certain physiological results have been ascribed to damage to particular fiber groups. And the effects of the lesions made in this experiment have been compared with the sequelae of other central nervous system lesions.

Refrigeration Anesthesia

H. Ogle Horner, M.D., Sayre, Pennsylvania. In THE AMERICAN JOURNAL OF SURGERY, 70:2:211, November 1945.

Summary

The use of refrigeration anesthesia for major amputations of the limbs is a sound surgical procedure. It is applicable in particular to the poor risk patient since there is scarcely any shock accompanying the procedure. It is possible to perform major amputations safely with this form of anesthesia in what formerly were hopeless cases because of debility or septicemia. It lowers the incidence of stump infections in those patients requiring amputation because of infection.

Pain is relieved in most instances after the application of cold, thus adding to the ease and comfort of the patient as well as facilitating preoperative preparation. The postoperative period is likewise free from pain, and the patient may carry on without missing a meal. This is especially important in diabetics as the diet and insulin do not have to be changed.

There is ease and quickness of operation in these cases. Poorly nourished tissues may be saved although refrigerations will not restore devitalized tissue. Edema and drainage may be controlled postoperatively when necessary. There is also a reduction in the incidence of thrombosis and embolism.

This method of anesthesia is also valuable in severe crushing wounds of the extremities or other injuries that require amputation.

This form of refrigeration is not intended to supersede other forms of anesthesia when the general condition of the patient is good, but is a valuable adjunct in the treatment of the poor risk patient.

Bicipital Tendovaginitis

Major I. W. Kaplan and Major B. L. Hawkins, Medical Corps, Army of the United States. In THE AMERICAN JOURNAL OF SURGERY, 70:3:385, December 1945.

Conclusion

1. Bicipital tendovaginitis in young male adults engaged in strenuous activities is a relatively common condition and deserves more consideration in the differential diagnosis in the clinical entity that has become designated as the "painful shoulder syndrome."

2. Trauma and infection are mentioned as possible etiological factors.

3. The right shoulder is most commonly affected in right-handed individuals suggesting that the additional trauma of use may be a factor in the etiology.

4. The average age in our group of cases was thirty years.

5. Infiltration therapy has given excellent results in our series of cases presented.

6. Treatment is accompanied by relief of pain and restoration of a full range of motion at the shoulder joint.

Exercising Device for Increasing Joint Action

Louis B. Newman, Commander, M.C., U.S.N.R. In UNITED STATES NAVAL MEDICAL BULLETIN, 43:559, Sept. 1944.

The speed of recovery and the amount of residual disability depend not only on the part played by the physical therapy technician but also on what the patient does to aid in his recovery. When limitation in range of motion of a joint, whether due to disease, injury, or immobilization for casts, splints, or other devices exists, early careful and intelligent motion should be instituted.

Tissues when heated become soft and pliable, spasm is diminished, and pain is decreased. During this stage maximum beneficial results can be secured to increase the range of motion of an extremity in the shortest time. Fatigue is delayed, for during this period of maximum hyperemia its products are carried off rapidly.

The exercising device described here will aid in securing maximum joint action in less time and with minimum disability and yet permit the patient to take an active part in his own recovery.

Parts of discarded broken crutches have been used to make this joint exerciser. However, the device can be made of strips of wood and when not used in conjunction with diathermy, can be made of metal. This device can be used not only during the application of heat to the involved joint but at any time it is desired to exercise the joint and thereby increase its range and strength. The patient can sit in a chair or on the edge of the table while being treated or while exercising. In many cases the final disability has been reduced to a minimum when this proper and necessary aid has been instituted early during the convalescent period.

The Use of the Person Trained in Physical Education in Physical Medicine

Editorial. In ARCHIVES OF PHYSICAL MEDICINE, XXVI: 12:771, Dec. 1945.

The war and the use of physical training for the ill and injured men in the various branches of the armed services has done much to stimulate the recognition and use of those trained in physical education in the medical field. Up to the present time there has been a gap between those trained in medicine and those trained in health and physical education. The physiologist specializing in exercise and the functional anatomist have been much more closely affiliated with the schools of physical education than they have been with the medical profession.

Hellebrandt is of the opinion that training in physical education is an asset for anyone who wishes to do research in physical medicine. Persons so trained are better able to make a detailed analysis of disability in movement or locomotion necessary in the highly specialized technic of muscle training.

Hellebrandt has made a definite effort to stimulate persons trained in physical education to become more interested in physical medicine and has suggested that the person trained in physical education shall "join hands with the physical therapist and the occupational therapist." She stated that "one of the healthiest things that has come thus far from the rehabilitation movement is a breaking down of the professional isolationism of these groups."

However, certain factors in regard to the training of the instructor of physical education should be pointed out in order that there may not be misunderstandings and pitfalls in the future. The statement sometimes made that the average person who has been educated in schools of physical education has an extensive or even a basic knowledge of the treatment of the ill can be seriously questioned. Persons trained in physical education only have made most of the studies relative to bodily mechanics. However, most if not all of these studies have been on apparently healthy individuals. Their studies of corrective exercises have been related largely to posture. It probably would be conceded by the teachers of physical education that they have little or no knowledge of disease or the deformities produced by disease or injuries; nor do they have extensive training in correction of these deformities. Therefore, persons trained in schools of physical education are not fitted in any sense to treat the sick and handicapped except to give exercises for the uninvolved parts or conditioning exercises to nearly normal patients. Although many persons trained in physical education have been used in the program of reconditioning and rehabilitation in the United States and in British Armies, certain dangers may arise if certain factors are not clarified.

Training in physical education has been and undoubtedly will continue to be important relative to the field of physical medicine in certain types of work or as a preprofessional training, but there should be no misunderstanding relative to the fact that a person who is trained in physical education only is a layman and should not be considered as a trained technical assistant except in rather limited circumstances in the over-all field of physical reconditioning. The fact that a large part of the literature concerning corrective and therapeutic exercise has come from persons trained in physical education should stir physicians who are more adequately trained in physiology and pathology of disease to be more aware of corrective or therapeutic exercise and learn to use it to the best advantage in medicine. The physician should learn that exercise in an over-all plan of treatment cannot be applied adequately or correctly unless he understands the physiologic effects, dose, effect in specific conditions and what is to be accomplished in general better than the person administering it.

Physical Medicine in the Army Air Forces Convalescent Hospital

Howard A. Rusk, Col., M.C., U.S.A., Chief, Convalescent Services Division, Office of the Air Surgeon, and Karl E. Voldeng, Major, M.C., U.S.A., Chief, Professional Relations Branch, Convalescent Services Division, Office of the Air Surgeon. In ARCHIVES OF PHYSICAL MEDICINE, XXVI:12:766, Dec. 1945.

The great advances made in physical medicine during the past few years are reflected in the convalescent services program of the Army Air Forces. The ever increasing emphasis is a result of an increased need due to the large numbers of war casualties, and the scope of the physical medicine program in Army Air Forces hospitals has grown with experience. As important as the new and approved technic is the realization that the value of physical medicine is dependent, first, on a thorough analysis and understanding of each patient and his problems, and second, as with any type of therapy, on accuracy of prescriptions both in character and in amount.

In an Army Air Forces convalescent hospital each soldier-patient is under close daily supervision of a medical officer who has been designated as his personal physician. Physicians who direct individual therapy are carefully chosen because of their training, experience and inherent ability to understand physical and emotional disabilities. They are specialists in the broadest sense; specialists in the psychology of emotional stress

and the sciences of organic repair. They are specialists in prescribing, evaluating and supervising physical therapy and physical reconditioning, which require the broadest clinical experience and skill. They must have a basic knowledge of functional anatomy and physiology, psychiatry, psychology, occupational therapy and vocational guidance and a deep understanding of the human being and what motivates him.

What Registered Means in Physical Therapy

John S. Coulter, M.D., Chairman, Council on Physical Medicine, American Medical Association and Marion G. Smith, B.S., Registrar, American Registry of Physical Therapy Technicians. In HOSPITALS, 19:10:62, October 1945.

Hospital superintendents are frequently asked by their boards why it is necessary to hire registered physical therapy technicians when so-called technicians who are not registered can be hired at lower salaries. This article under the various heading of the studies in approved courses shows the reasons for taking an approved course and the reasons why the experience in physical therapy in the hospitals of the armed forces and the Veterans Administration is not sufficient.

Work Therapy in an Army General Hospital

Herman L. Rudolph, Capt., M.C., A.U.S. In ARCHIVES OF PHYSICAL MEDICINE, XXVI:12:741, Dec. 1945.

Work, or industrial therapy, has gained much attention from those concerned with the recently instituted rehabilitation centers at Toronto, Ontario, Canada, and Boston. Storms, of the Toronto center, has developed a unique system in industrial therapy. He demands that his occupational therapists familiarize themselves with the technics and tools of the various trades. Visits are made to industries, such as meat packing plants, foundries, machine shops and tanneries, where the therapists make a job analysis, securing for themselves a speaking knowledge of the work and materials. When the workman comes to the clinic for an initial interview, the therapist is able to speak his language and has a good grasp of the activity best for him. The bricklayer is put to work laying bricks, and when he can lay a thousand bricks a day he is ready to return to work; the sign painter with weakness of grip and shoulder muscles, unable to raise or lower his scaffold, is supplied with an overhead rope, a compound pulley and a weighted bag; the milk man who lifted 75-pound cans of milk fifty times daily is put to work lifting 75-pound bags of sand, and when he can do this fifty times daily he is ready for work. Storms argues that these activities may not be work therapy or occupational therapy in the conventional sense, but they do produce muscle. Muscle is produced only by exercise, and the best type of exercise is work therapy. It is flexible, it can be directed to particular joints and muscle groups, a new technic need not be learned if the old job is properly analyzed, and the patient is better able to watch progress and help decide on fitness.

Coulter called attention to Roux's theory of functional adaptation, which states that a muscle develops only those characteristics which are necessary for the work it is called to do. A muscle can be trained to overcome great resistance and will develop power to do so, but this will not improve its endurance, which improves by its contracting against a small resistance over a long period. For example, a man can do 10 foot pounds of work by raising 10 pounds of weight 1 foot by flexing the elbow. He can do the same work raising 1 pound of weight 1 foot ten times. The first instance involves power; the second, endurance.

Work by patients in the hospitals must be justified on a therapeutic basis. All concerned are alert to prevent degeneration of this activity into a subsidiary police and personnel section. Consideration is given in certain emergencies when manpower is urgently required, but assurance is secured for a brief and temporary utilization. Requests for the assignment of certain patients who are considered to be more familiar with specific jobs are generally ignored, since they smack of favoritism and may be resented by other patients. There are few jobs in the hospital that cannot be learned quickly. Furthermore, undue familiarity between ward and preconvalescent patients is probably not conducive to productivity.

It is recognized that most jobs throughout the hospital are not good reconditioning agents, so that all patients are required to participate in the exercise periods twice daily, as do all patients throughout the hospital. It is mandatory that all preconvalescent patients attend the afternoon educational reconditioning hour. For the majority, physical therapy and functional occupational therapy are prescribed. Many are assigned to the gymnāsium for remedial exercises and adaptive sports.

One might think that there would be a tendency to hold some patients longer than necessary because of their reputation as good workers. This is rigorously controled by repeated check on hospital days and repeated emphasis on rapid disposition of patients through channels for completion of class 2 and 1 reconditioning.

In conclusion, there can be no doubt that with tolerant and understanding supervision a work therapy program in the army general hospital can be of value in the treatment of patients, physically and mentally. This requires the studied cooperation and active interest of all concerned.

The Use of Fluorescent Wheals in Determining Extent and Degree of Peripheral Vascular Insufficiency

J. Locke Neller, M.D., Madison, Wisconsin. In ANNALS OF SURGERY, 122:5:901, November 1945.

Two methods of producing wheals were used with equally good results. The simpler one (superficial scratches) was recommended for clinical use, and the other (intradermal histamine injections) was preferred as a gross experimental method.

The histamine-wheal test has been the only practical clinical way of utilizing the known fact that wheal formation is specifically dependent upon the presence of adequate vascular flow. Experience has upheld the basic truth that absence of a wheal response to this substance indicates marked impairment of circulation.

Conclusions

1. Wheal fluorescence (both scratch and histamine) is a valuable new method in the study of peripheral vascular diseases.

2. Fluorescent scratch wheals are recommended for routine clinical use; fluorescent histamine wheals are preferred for experimental studies.

3. There are only two observations necessary to answer the problem of peripheral vascularity; i.e., presence, and depth (intensity) of whealing. All other corollaries (wheal size, time of appearance, pseudopodia, flares) are either undependable or unnecessary.

4. Previous predictions regarding the clinical applicability of the test are upheld.

Electromyographic Studies in Poliomyelitis

Paul M. Kohn, M.D., Edward M. Zucker, M.D., and John A. Toomey, M.D., Cleveland, Ohio. In THE JOURNAL OF NERVOUS AND MENTAL DISEASE, 102:5: 438, November 1945.

Summary and Conclusions

(1) Paresed and paralyzed muscles involved in poliomyelitis infrequently show electromyographic evidence of spasm while at rest.

(2) A small percentage of such muscles show constant potential discharges when stretched. Intermittent discharges are found more frequently.

(3) Evidence of disorganization of the neuromuscular mechanism as manifested by disordered reciprocal and crossed innervation is a common finding.

Sprained Ankles: A New Form of Treatment

Walter Scott, Lieutenant Commander (MC) U.S.N.R. IN NAVAL MEDICAL BULLETIN, 45:4:684, October 1945.

Our concepts in the treatment of ankle sprains have become modified in the past several years in at least one respect; it is now generally held that the early institution of weight-bearing serves to cut down materially the period of disability.

With these points in mind, the author sought to devise a routine which would embrace the two essential principles, namely, early weight-bearing and good ankle support, and it is the purpose of this article to describe this routine and to set forth a few suggestions which will be helpful in differentiating a fracture from a sprain.

The support principle is a simple one, based on the fact that a military boot is a good splint in itself. By the addition of felt pads to the inside, its supporting qualities are multiplied many times. After the pads are properly applied, the boot is laced tightly to the top eyelet and the patient instructed to walk a distance of 500 yards and to return for any adjustments that may be required.

It is surprising and gratifying to see many of them return from their trial walk without the slightest limp. The bulk of these patients are sent to light duty for 48 hours, instructed to wear the pads for at least 21 days, and to return only if they have further trouble. It has been noted that about 20 per cent are likely to return, and in that group we usually find that the boots have not been laced tightly enough. A smaller percentage may require further individual care, but on the whole we are able to return our men to duty immediately with a minimum effort on the part of the Medical Corps, with a maximum of comfort to the injured man, and with an increased assurance that the ankle will be fully protected against other injuries during the healing phase.

The support should be used for at least three weeks in order to insure the best healing.

Support of Fingers and Thumb in Radial Nerve Paralysis

IN BULLETIN UNITED STATES ARMY MEDICAL DEPARTMENT, 88:38, May 1945.

In the treatment of fractures of the humerus or forearm bones associated with radial nerve injury it is frequently necessary to continue the use of plaster. Extension support of the fingers, and where possible of the wrist, should be flexible in order to permit active motion.

A simple method of supporting the thumb reported by Major Howard A. Swart, M.C., has been of great value in these cases and utilizes material readily available.

New Uses of Procaine (Preliminary Communication)

Frederick M. Allen, M.D., New York. In ARCHIVES OF PHYSICAL MEDICINE, XXVI:12:759, Dec. 1945.

Other articles have reviewed the difficult development of shock and refrigeration treatments and the frustrated hopes for further research. One of the desired extensions of the investigation consisted in taking advantage of the increased vascular premeability in injured or inflammed regions in order to convey useful substances into those regions. In particular, this principle appeared to be the explanation of the marked analgesia obtained by several workers in areas of pain or irritation by means of intravenous infusions of procaine. Preliminary tests confirmed the reality of this relief of pain with doses of procaine which are not toxic and which cause much slighter blunting of sensibility over the normal body surface, i.e., in areas where capillary permeability is not abnormally increased. The method as used by others was considerably modified in our work by increasing the dosage, lengthening the time and extending the application to a wide variety of painful conditions, of which some have been described and others will be described hereafter.

Conclusions

Intravenously infused procaine can relieve many forms of pain, presumably by anesthesia of peripheral nerve endings resulting from diffusion, which occurs most effectively in areas of increased capillary permeability.

Since circulating procaine is rapidly destroyed, the analgesia can be prolonged almost indefinitely by continuance of the slow intravenous drip, without apparent harm, danger or uncomfortable after-effects.

Central anesthesia with procaine lies outside this presentation but appears to be an important new application.

The Challenge of Crutches. IV: Prescribing Crutch Gaits for Orthopedic Disabilities

George G. Deaver, M.D., Medical Director, Institute for Crippled and Disabled, and Mary Eleanor Brown, M.A., Physical Therapy Technician, Institute for Crippled and Disabled, New York. In ARCHIVES OF PHYSICAL MEDICINE, XXVI:12:747, Dec. 1945.

Comment

Such are the main disabilities with the proper gaits prescribed for them. Whether or not spasticity, athetosis, tremor or flaccidity is present, the gaits recommended remain essentially the same. When there is spasticity the subject must accustom himself to working in spite of it, and with proper bracing, practice and perseverance he can learn to become somewhat the master of his spastic condition. In cases of severe spastic paraplegia the swinging-through gait will be the one most useful for speed.

A difficulty which often arises in cases of spastic and athetoid quadriplegia is inability of the subject to place his hands on the hand pieces of crutches in a good position. A position of strong dorsiflexion of the hands is needed to hold the crutches and bear the weight of the body in swinging gaits. Dorsiflexion of the hands is a difficult motion for most subjects with cerebral palsy. However, this position should be encouraged by the instructor, and if it cannot be attained the hands should be tied onto the crutches in the desired position either with bandages or with straps. There are cases in which the hands fly off the crutches because of involuntary

motion. In such cases also the hands must be tied onto the crutches. A possible solution to excessive involuntary motion when crutches are desired is use of unusually heavy crutches.

If the wrist joints are fused naturally, as in arthritis, or surgically, as may be desirable in severely deformed subjects, then, of course, the position of the hands on crutches is limited by the fixed position.

Persons with spinal cord injuries producing spastic paraplegia often cannot have their calf muscles stretched —as happens when the weight of the body is taken on the balls of the feet—without starting an ankle clonus that may throw them completely off balance and give them an unpleasant sinking feeling. It is important for such subjects to concentrate on their crutch-balancing exercises and their standing exercises to the point where they are able to work through this difficulty. It is often possible for them to stop the ankle movements by simply shifting their weight to their heels. They should be taught to place their feet down in front of the crutches in such a way as to have their heels make first contact with the floor. Ninety degree ankle stops on the braces make this possible.

It must be emphasized that the prescription material presented is not exhaustive but rather suggestive and detailed. No doubt many disabilities and gaits will be found which do not fit into the classification given. In other words, this study must be considered as a presentation of the point of view resulting from the experience of one group of crutch workers who strongly urge the recording of other points of view.

No statistical conclusions can be drawn from the preceding data. Much more experimentation will have to be done and a great deal more information gathered before there can be any real understanding of the relationships suggested herein. However, the following generalizations are given for the sake of summary:

1. The four point and two point gaits are for those who can take steps forward with both feet.
2. The three point gait is for those who must spare and aid one lower extremity.
3. The tripod gaits are for severely disabled people who cannot lift the body off the floor.
4. The swinging gaits are for those who have the power to lift the body to clear the floor.
5. The rocking chair gait is for those who have a structural deformity of the spine and are unable to keep their balance while doing other gaits.

It is hoped that rehabilitation therapists may be aided in understanding some of the problems of crutch gaits and be stimulated to explore further the fascinating field of crutch management.

Book Reviews

Structure and Function of the Human Body. *By Ralph N. Baillif, Ph.D., Assistant Professor of Anatomy, Louisiana State University School of Medicine, New Orleans, and Donald L. Kimmel, Ph.D., Associate Professor of Anatomy, Temple University School of Medicine, Philadelphia. Cloth. Price, $3. Pp. 328, with 158 original illustrations. Philadelphia: J. B. Lippincott Company, 1945.*

This volume gives a concise, carefully organized presentation of the structure and function of the human body. It is not too voluminous for efficient use in the time usually allotted to this introductory course for nurses. It eliminates many factual details which, although interesting and pertinent, are not essential for a basic understanding of the body as an integrated unit.

The survey first considers the physical building units: cells, tissues and organs, correlating their structure and function. Then the various organ systems are passed in review with special emphasis laid on the relationship of each system to the body as a functioning mechanism.

It is written in simple language, the authors using a minimum of technical and scientific words and phrases. Factual data is authoritative and thus makes it easy to learn the unified concept of the body as a working mechanism. Emphasis is placed on basic principles throughout the book. Many splendid illustrations help to convey the authors' conceptions. It can be recommended as a textbook for schools of nursing.

Fractures and Orthopedic Surgery for Nurses and Masseuses. *By Arthur Naylor, Ch.M., M.B., M.Sc., F.R.C.S. (Eng.), F.R.C.S. (Edin.), Resident Surgical Officer Westwood E. M. S. Hospital, Bradford Examiner in Surgery, General Nursing Council, Medical Officer in Charge of the Rehabilitation Department, Westwood E. M. S. Hospital. Foreword by Ernest Finch, M.D., M.S. (Lond.), F.R.C.S. (Eng.), Professor of Surgery, University of Sheffield. Cloth. Price, $5. Pp. 288, with 243 illustrations. Baltimore: The Williams and Wilkins Company, 1945.*

The author correctly states that the success of orthopedic surgery is dependent upon the knowledge, skill and care of the nurses and physical therapists to whom aftercare and treatment is delegated. Naylor also emphasizes that rehabilitation is not a new form of treatment to be practiced by rehabilitation specialists. It is the mechanism of placing the patient in a position to pursue his former or equivalent occupation by means of surgery, nursing, physical and psychological treatment, and requires cooperation between surgeon, nurse, masseuse, patient and employer.

This book explains and illustrates orthopedic apparatus and instruments, orthopedic operations, the general methods of correction of deformity and the various conditions under orthopedic surgery. It is recommended to orthopedic nurses.

Handbook on Physical Therapy for Cerebral Palsy. *By Esther Hutchinson, Supervising Physical Therapist, Ohio State Department of Education; Elizabeth H. Lancelot, Physical Therapist, Ohio Cerebral Palsy Project with Winthrop Morgan Phelps, M.D., Medical Director of Children's Rehabilitation Institute, Cockeysville, Maryland. Paper. Pp. 45, with 25 illustrations. Published by Ohio Society for Crippled Children, Inc. Distributed free of charge by State Department of Education, Division of Special Education, Columbus, Ohio, 1945.*

This pamphlet gives physical therapists a uniform plan of therapy for the patient with cerebral palsy. It follows the methods of treatment developed by Doctor Phelps at the Children's Rehabilitation Institute. Rhymes and music are quite universally used by the physical therapist so this pamphlet will be specially valuable to students as it gives singing rhymes and music for exercises.

It can be recommended to physical therapists as the latest in the field of physical therapy for cerebral palsy, and to schools for physical therapy as a valuable reference.

Manual of Diagnosis and Management of Peripheral Nerve Injuries. *By Robert A. Groff, M.D., Lieutenant Colonel, M.C., A.U.S., formerly Assistant Professor of Surgery, Jefferson Medical College, and Assistant Professor of Neurosurgery, Graduate School of Medicine, University of Pennsylvania, and Sara Jane Houtz, B.S., First Lieutenant (P.T.), A.U.S. With an introduction by I. S. Ravdin, M.D., Brigadier General, M.C., A.U.S., John Rhea Barton Professor of Surgery, University of Pennsylvania. Cloth. Price, $8. Pp. 188, with 111 illustrations. Philadelphia: J. B. Lippincott Company, 1945.*

This book should attract the attention of physical therapists because one of its authors is a physical therapist and because the authors state that they do not present it as a comprehensive treatise but that the purpose of this manual is to provide the physician and the physical therapist with a concise text.

General Ravdin in his foreword gives some interesting facts. "It is all the more interesting that this important volume was prepared when the personnel of this hospital were working from fourteen to eighteen hours a day at regular duties and when the intense heat and humidity of the monsoon season were at their height on the Assam-Burma Border." "Caring for Chinese, as well as American patients, has provided the opportunity for complete therapy from the initial operation to recovery, for the former have remained with us during convalescence." "Amidst the bamboo bashas that have served as wards, with few of the comforts of a hospital in the Zone of the Interior, these workers have studied and cared for their patients."

The book is divided into two parts: Part I is devoted to a general discussion of nerve injuries, with specific advice on how to recognize immediately and manage effectively injuries affecting the peripheral nerves. Special attention is given to management, carrying through to postoperative care. Part II presents an illustrated outline of peripheral and cranial nerve function.

This book has magnificent illustrations, diagrammatic and anatomic drawings, showing nerve relationships in crucial parts of the extremities and action diagrams showing muscle function.

This book can be recommended to physicians and physical therapists as a source book of the new and proved methods for the diagnosis, management and aftercare of peripheral nerve injuries.

Plaster of Paris Technique in the Treatment of Fractures and Other Injuries. *By T. B. Quigley, Lieutenant Colonel, Medical Corps, Army of the United States, Instructor in Surgery, Harvard Medical School (in absentia); Junior Associate in Surgery, Peter Bent Brigham Hospital, Boston (in absentia). Cloth. Price, $3.50. Pp. 107, with 103 illustrations. New York: The Macmillan Company, 1945.*

The experience of the recent war has spotlighted the value of immobilization in the treatment of numerous types of injury. Of all the modes of immobilization the plaster of paris cast is in general unsurpassed for efficiency and it is cheap, durable and easily adapted to the individual case. No two injuries are ever quite the same and the variety that may be required for particular situations in infinite.

Skill in the construction of casts is a craft. This book demonstrates by the text and many excellent illustrations the proper technics for various types of casts useful to the practitioner. This book is useful to medical students, internes, residents and practitioners responsible for the management of trauma.

The Basis of Clinical Neurology: The Anatomy and Physiology of the Nervous System in Their Application to Clinical Neurology. *By Samuel Brock, M.D., Professor of Neurology, College of Medicine, New York University, New York. Second edition. Cloth. Price, $5.50. Pp. 393, with 72 illustrations. Baltimore: The Williams and Wilkins Company, 1945.*

The second edition of "The Basis of Clinical Neurology" is as excellent as the first. There are few important changes other than that each section has added to it any new pertinent information which has developed in the intervening years. The author has accomplished this, plus the few additions, without materially enlarging the book. There are contributions by three collaborators. That on electrodiagnostic methods is a little fuller discussion than in the first edition. The contributions on the physiology of urination and on electroencephalography are definitely beneficial and in order in this book.

This is by no means a textbook in clinical neurology nor is it a book of physiology. The author has succeeded in combining these two approaches into a well-rounded and exceedingly valuable volume. The language is simple and the presentation is concise. There is no unnecessary verbiage and no redundant theoretical discussion. The book is a most useful one for any physician, no matter what field of medicine he practices.

The Autonomic Nervous System. *By Albert Huntz, Ph.D., M. D., Professor of Microanatomy in St. Louis University School of Medicine, St. Louis, Missouri. Third Edition. Cloth. Price, $8.50. Pp. 687, with 91 illustrations. Philadelphia: Lea & Febiger, 1945.*

The literature on the autonomic nervous system is enormous. This book contains one hundred pages of bibliography and yet the author had to make a selection of the material to be used. Anatomists, physiologists, clinicians and others have contributed to our knowledge on the autonomic nervous system and to be an unbiased guide through all this material is a really gigantic task. The third edition of this book is even better than previous ones. It is not a book for beginners; it brings out clearly where agreement has not been reached and states the evidence for both sides with fairness and objectivity.

The average physical therapist probably will read the chapter on the innervation of the vascular system first, but he should not miss the chapter on referred pain and the chapter on the sympathetic innervation of skeletal muscle which treats a controversial subject fairly and with reference to most of the available literature. But all through the book the physical therapist will find much of value. Anyone interested in the autonomic nervous system cannot afford to do without a careful study of this book.

A Textbook of Neuroanatomy. *By Albert Kuntz, Ph.D., M.D., Professor of Microanatomy in St. Louis University School of Medicine, St. Louis, Missouri. Fourth Edition. Cloth. Price, $6.50. Pp. 478, with 325 illustrations. Philadelphia: Lea & Febiger, 1945.*

The fourth edition of this well-known textbook of neuroanatomy has been thoroughly revised and brought up-to-date. Through the entire book the author has kept in mind that neuroanatomy should form the basis for an understanding of the functioning of the central nervous system. He has been very successful in making the reader understand the relationship between structure and function. Clear and well printed diagrams increase the value of this book, which by now has become one of the standard textbooks of neuroanatomy.

Woman's Medical Problems. *By Maxine Davis. Cloth. Price, $2. Pp. 22. New York: Whittlesey House of McGraw-Hill Book Company, 1945.*

This book is devoted to teaching woman to know herself not only as an individual but as an integral part of our society. Each woman has her own problems which affect her as a person but these are problems which are common to others, so that the composite is reflected as a problem of society. A woman may have a menstrual disturbance which affects her life and causes some incapacity. Such disorders are frequent, and in industries where many woman are employed, the total production may be affected.

Each woman is most interested in herself and should be alert to recognize any departure from that which is normal for her. Physical therapists can recommend this book to their patients as setting forth in clear and understandable language but with authority all that medical science knows about the biological functions of woman and the conditions of disease or misfunctioning that may affect them.

Dr. Fred Adair has written the foreword, and every woman reading this book should remember his advice. "She should not rely upon her own knowledge and opinions but should seek the advice and help of one who knows the most about ills which afflict her. Care should be used in selecting a medical adviser and helper; one who presumes to know her trouble at a glance should be avoided. Sometimes the cause of her trouble is obvious and at other times it is obscure, but even obvious disorders may be accompanied by some complication or other less apparent condition. No one should be satisfied with anything less than a carefully taken history and a thorough examination."

Intelligence and Its Deviations. *By Mandel Sherman, Ph.D., M.D., Professor of Educational Psychology, The University of Chicago, Chicago. Psychology Series, Albert T. Poffenberger, Ph.D., Editor, Professor of Psychology, Columbia University, New York. Cloth. Price, $3.75. Pp. 286, with 19 illustrations. New York: The Ronald Press Company, 1945.*

This book performs a very useful function in a field where psychology and medicine meet. The author has collected data from both the medical and the psychological literature. The first chapters are devoted to definition of intelligence and mental growth. Some of the psychological terminology might be somewhat difficult for the medical man, but the book is sufficiently self-explanatory so that in continued study of the book these difficulties will disappear. Different factors influencing intelligence and its development are discussed. Many chapters are devoted to the pathology of intelligence, and the effect of different pathologies on intelligence are described. A chapter on mental testing gives the medical reader an idea of a field that is neglected in too many medical textbooks.

Physical therapists who have to deal with mentally handicapped children will find this a most useful book.

Thoracic Remedial Exercises as Developed and Presented at Baxter General Hospital, Spokane, Washington, 1945.

This is a paper booklet of 22 pages presenting a group of deep breathing exercises. They are specifically designed for the rehabilitation of individuals who have experienced thoracic injuries or diseases. A thorough discussion of the medical and physical aspects in the development of these exercises is presented.

Common Ailments of Man. *Edited by Morris Fishbein. M. D., Editor, Hygeia, The Health Magazine. Cloth. Price, $1.00. Pp. 177, with 7 illustrations. Garden City, N. Y.: Garden City Publishing Co., Inc., 1945.*

This book furnishes the laymen's knowledge of the common ills that are most apt to beset him. Many of the conditions are symptoms rather than diseases; for instance, backache, headache and constipation. For that reason it is emphasized that the best advice that can be given to anyone who has these symptoms is to consult a competent physician to get a scientific diagnosis and treatment.

People nevertheless may know with advantage many of the main facts about the conditions that trouble them. Therefore, these facts are given for common colds, hemorrhoids, sinus infections, allergy, arthritis, neuritis, varicose veins, anemia, nephritis, the prostate gland, heart disease, high and low blood pressure and athlete's foot. If physical therapists will remember the contents of this book it can be used to recommend to their patients to answer their questions about these conditions.

Prescribing Occupational Therapy. *By William Rush Dunton, Jr., M. D. Second Edition. Cloth. Price, $2.50. Pp. 151. Springfield, Ill.: Charles C Thomas, 1945.*

The author emphasizes that occupational therapy is an adjunct to other forms of treatment, supplementing them and increasing their value so that from the combined treatment the duration of care is decreased or a better end result is obtained. It is written for the physician to orient him in this field, and gives concise information of the general principles involved.

It is valuable and can be recommended to physicians on the staffs of general or special hospitals and institutions having occupational therapy departments.

A Synopsis of Medicine. *By Sir Henry Letheby Tidy, K.B.E., M.A., M.D., B.Ch. (Oxon), F.R.C.P. (Lond.). Extra Physician to H. M. The King, Consulting Physician to St. Thomas Hospital, Hon. Major-General, lately Consulting Physician to the British Army. Eighth Edition. Cloth. Price, $7.50. Pp. 1215. Baltimore: The Williams and Wilkins Company, 1945.*

This volume provides a synopsis of the principles of medicine that are of importance at the present time. This edition has been revised and enlarged. Some of the revisions are the action of the sulphonamides in treatment; the section on diseases of the blood, the title of "Acute Infective Hepatitis" has been substituted for "Catarrhal Jaundice" and the description transferred to "Specific Infectious Diseases"; "Acute Necrosis of the Liver" has been made the primary heading instead of "Acute Yellow Atrophy"; "Diseases of the Reticuloendothelial System" has been substituted for "Lipoidoses" as a title of a group of diseases.

There are some new articles. In one group are diseases newly recognized or recognized as more common and important than was formerly supposed, such as the mysterious sarcoidosis now cropping up all over the body. In the second group are diseases previously recognized but not included, usually rare syndromes as the Laurence-Moon-Breal Syndrome. Many articles have been extensively rewritten.

While this synopsis cannot replace a textbook, the revisions make this edition specially valuable to those who have to revise their knowledge of medicine in general or some disease in particular, to the medical student whose state board or final examinations are within sight, and to the hurried practitioner.

Modern Psychiatry. *By William S. Sadler, M.D., F.A.P.A., Consultant Psychiatrist to Columbus Hospital; Consultant in Psychiatry, the W. K. Kellogg Foundation; Fellow of the American Psychiatric Association; Member of the American Psychopathologic Association. Cloth. Price, $10. Pp. 896. St. Louis: The C. V. Mosby Company, 1945.*

In his own words the author has written this book "to serve as a ready and compact reference book for diagnosis and immediate treatment" of psychiatric problems. It departs somewhat from the usual form of a psychiatric textbook in that the stress is placed on problems of adjustment rather than on formal descriptions of disease entities.

The book is divided into four sections. The first deals with personality problems. In this an attempt is made to define personality and discuss its various facets. Great issue is made of the highest order of function as understood by the author in discussing the significance of ethical, normal and spiritual experiences. Personality development through growth is detailed. Types of personality are discussed and so on.

In the second part the psychoneuroses are reviewed. This is a detailed description of the various disease entities such as phobias, hysteria, anxiety states. In addition there are included such borderline states as mood swings, inferiority complex and war neuroses.

Part III describes the psychoses as reaction types along the usual lines. For some reason, that is not clear, the author has included epilepsy under the so-called defective reaction types. There are other departures of this nature from accepted understanding.

In the final part of the book is presented the author's ideas of therapy. There are chapters on such subjects as suggestion and hypnotism, catharsis, retraining and remotivation. The concepts of treatment are primarily those of trying to teach the patient a means of fitting into life around him not so much as a result of better understanding of his own conflicts but rather as a result of imposing artificial requirements of society. The peak of reeducation is the adoption of some new philosophy and acquisition of religion of some form.

Although the purpose and plan of the book are good there are many defects which destroy its value. Every discussion is outlined numerically and often one finds terms which are so identical that they cannot be differentiated yet the author accords them separate significance. There is much repetition in the various sections. Often it is difficult to follow the plan in the discussion of any individual section. The habit of frequently referring to his own "unusual" experience with cases gets to be monotonous. There are many places in which he presents material dogmatically as though it is the last word and yet the discussion is quite superficial. For example, his consideration of paresis is inadequate. In discussing epilepsy the recent work on electroencephalography is so quickly skimmed over as to be hardly noticeable and yet considerable space is wasted on pointless information.

The author must be complimented on his attempt to point out the relative importance of personality disorders in psychiatry. He has a well-rounded approach to psychiatric problems. However, in putting it on paper he has failed to make it readily accessible and understandable information.

Amputation Prosthesis: Anatomic and Physiologic Considerations, with Principles of Alignment and Fitting Designed for the Surgeon and Limb Manufacturer. *By Altha Thomas, M.D., F.A.C.S., Associate Professor of Surgery (Orthopedics), University of Colorado School of Medicine, and Chester C. Haddan, President of the Association of Limb Manufacturers of America. Cloth. Price, $8. Pp. 305, with 207 illustrations. Philadelphia: J. B. Lippincott Company, 1945.*

The problems of amputation and limb fitting are not limited to time of war and the military service. Figures for the Second World War released as of July 1, 1945, reveal that over 15,000 amputation cases have been treated in the various amputation centers established by our Army and Navy. But the American Federation of the Physically Handicapped has estimated that there are approximately 75,000 new amputation cases in this country every year and that of this number 40,000 are major amputations requiring prostheses.

There has always been a tendency throughout history to exaggerate the value of all prostheses. This tendency has reached new heights today by newspaper and magazine articles written by misinformed persons. Of far greater importance than materials and types of joint mechanisms in a successful use of a prosthesis are the proper alignment and fitting of the limb. It is emphasized that surgeons and limbmakers alike have been too prone to place undue emphasis on the importance of materials and complex mechanical devices, neglecting the all-important principles of alignment and fitting.

It is believed that every physical therapist should be instructed that the use of physical therapy in the after-treatment of an amputation involves a knowledge of the alignment, the fitting and the instruction and training in the proper use of the prosthesis. Therefore, while this book is designed for the surgeon and limb manufacturer, it should be a valuable book for physical therapists treating amputations.

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